N62 71519

NASA TN D-945

NASA TN D-945

IN-02

388430

TECHNICAL NOTE

D-945

AERODYNAMIC LOADING CHARACTERISTICS AT MACH NUMBERS FROM 0.80 TO 1.20 OF A 1/10-SCALE THREE-STAGE SCOUT MODEL

By Thomas C. Kelly

Langley Research Center
Langley Field, Va.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON September 1961

Y

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

TECHNICAL NOTE D-945

AERODYNAMIC LOADING CHARACTERISTICS AT MACH NUMBERS FROM 0.80 TO 1.20 OF A 1/10-SCALE THREE-STAGE SCOUT MODEL

By Thomas C. Kelly

L
1
6
0
7

SUMMARY

Aerodynamic loads results have been obtained in the Langley 8-foot transonic pressure tunnel at Mach numbers from 0.80 to 1.20 for a 1/10-scale model of the upper three stages of the Scout vehicle. Tests were conducted through an angle-of-attack range from -8° to 8° at an average test Reynolds number per foot of about 4.0×10^{6}.

Results indicated that the peak negative pressures associated with expansion corners at the nose and transition flare exhibit sizeable variations which occur over a relatively small Mach number range. The magnitude of the variations may cause the critical local loading condition for the full-scale vehicle to occur at a Mach number considerably lower than that at which the maximum dynamic pressure occurs in flight. The addition of protuberances simulating antennas and wiring conduits had slight, localized effects. The lift carryover from the nose and transition flare on the cylindrical portions of the model generally increased with an increase in Mach number.

INTRODUCTION

The Scout program of the National Aeronautics and Space Administration, established to provide a vehicle for space research capable of orbital, probe, and reentry missions, has resulted in the development of a four-stage solid-fuel rocket that has a high degree of dependability and is relatively economical and simple in handling and launching. As part of the vehicle development program, tests have been conducted in the Langley 8-foot transonic pressure tunnel to determine the static aerodynamic force and loading characteristics for the vehicle. Force test results for a number of Scout and related configurations are available in references 1 to 7.

This paper contains results of an aerodynamic loads investigation of a 1/10-scale model of the upper three stages of the Scout vehicle. Tests were conducted through a Mach number range from 0.80 to 1.20 and an angle-of-attack range from -8° to 8°. Reynolds numbers per foot for the tests were approximately 4.0×10^6.

SYMBOLS AND COEFFICIENTS

L1607

D body diameter

l overall body length

M Mach number

p_l local static pressure

p free-stream static pressure

q free-stream dynamic pressure

r body radius

R_{ft} Reynolds number per foot

x longitudinal distance, measured from nose cone apex

y lateral distance, measured from body center line

α angle of attack of body center line

ϕ orifice row orientation angle, measured clockwise from the vertical, as viewed from the front

C_p pressure coefficient, $\dfrac{p_l - p}{q}$

$c_{n,f}$ body section normal-force coefficient, $\displaystyle\int_0^1 \left(C_{p,L} - C_{p,U}\right) d\left(\frac{y}{r}\right)$

C_N normal-force coefficient, $\displaystyle\frac{4l}{\pi D_{ref}} \int_C^1 c_{n,f} \frac{D}{D_{ref}} d\left(\frac{x}{l}\right)$

C_m pitching-moment coefficient, $\frac{4l^2}{\pi D_{ref}^2} \int_0^1 c_{n,f} \frac{D}{D_{ref}} \frac{x_{cg} - x}{l} d\left(\frac{x}{l}\right)$

Subscripts:

cg moment reference center

L lower

ref reference

U upper

APPARATUS AND TESTS

Model

A drawing of the 1/10-scale three-stage Scout model is presented as figure 1. The pressure-distribution model was obtained by modifying the force-test model used for the investigation of reference 6 through the installation of a single orifice row which extended the length of the model along the top. Four orifices were also installed in the right wiring tunnel (see fig. 1). Locations of the various orifices are given in table I, and model photographs are provided in figure 2.

Tests and Procedure

Tests were conducted in the Langley 8-foot transonic pressure tunnel at Mach numbers from 0.80 to 1.20 and through an angle-of-attack range from -8° to 8°. Tunnel stagnation pressure was maintained at approximately 2,120 pounds per square foot. Test Reynolds numbers per foot varied from about 3.8×10^6 at a Mach number of 0.80 to 4.2×10^6 at a Mach number of 1.20. (See fig. 3.)

Although only a single orifice row was employed for these tests, an attempt was made to obtain the local pressure distributions corresponding to three orifice meridian rows on the Scout vehicle by rotating the model and either adding or removing protuberances in order to arrive at a simulation as close to the actual vehicle as was possible for the particular orifice row orientation angle being tested. Table II has been prepared to show the various protuberance conditions for each orifice row orientation tested.

For the simulated Scout configuration, tests were conducted at orifice row orientation angles of 0°, 90°, and 180° (measured clockwise

from the vertical as viewed from the front) with the protuberances arranged as listed in table II. In addition to the body with protuberances, tests were made for the body alone with orifice row orientation angles of 0°, 30°, and 60°.

All tests were conducted with fixed transition. The transition strips were 0.1 inch wide, located with the leading edge at body station 2.35 inches, and were composed of number 80 carborundum grains set in a plastic adhesive.

L
1
6
0
7

Boundary Interference Effects

Effects of subsonic boundary interference in the slotted test section are considered to be negligible and no corrections for these effects have been applied. At supersonic speeds, the data are generally affected by boundary-reflected disturbances which occur at Mach numbers from slightly over 1.03 to those at which the disturbances are reflected downstream of the model base. For the present tests, the model length and tunnel power restrictions precluded the attainment of a Mach number at which the model would be reflection-free. However, estimates have indicated that the model pressure distributions would be free of reflected wall disturbances forward of model station 36 inches at a Mach number of 1.13 and forward of station 45 inches at a Mach number of 1.20.

PRESENTATION OF RESULTS

Results obtained in the present investigation are presented in the form of local pressure coefficients, body section normal-force coefficients, and overall body normal-force and pitching-moment coefficients.

Pressure coefficients for all model configurations and test conditions are presented in tables III and IV. Representative plots of some of these results are given in figures 4 to 8 and are arranged to show general effects of Mach number, the addition of protuberances, and angle of attack.

It should be noted that pressure coefficients for the model nose stagnation orifice ($x/l = 0.024$) although included in the tables are not presented on the plots.

For the present investigation it was possible, through the proper combination of data from various test conditions for the body alone, to simulate the pressure distribution completely about the body at angles of attack of 4° and 8°. These results were then machine integrated

in order to obtain body section normal-force coefficients which are presented in table V and (multiplied by a diameter ratio) in figure 9. Overall body normal-force and pitching-moment results, obtained by manual integration of the body section normal-force plots, are based on a body cross-sectional area of 0.0524 square foot and a length of 3.10 inches (maximum body cylindrical diameter) and are given in figure 10. The moment reference center location is shown in figure 1.

DISCUSSION

Simulated Scout Model

The effects of increasing Mach number on the local pressure coefficients for the simulated Scout model are shown in figure 4. Comparison of the results indicates the main effects of varying Mach number to be rapid increases and decreases in the negative pressure peaks associated with the nose and transition flare rear corners and the general broadening of these peaks as the Mach number is increased. Evident also is the change in the general type of flow over the transition flare from that at a Mach number of 0.80, where the effects of the compression and expansion corners are felt somewhat upstream, to the condition at a Mach number of 1.20, where the changes are abrupt and are associated with compression and expansion waves at the corners.

Comparison of the pressure coefficients measured on the right wiring tunnel (which is rolled 45° with respect to the main orifice row; see fig. 1) with those measured on the body at similar longitudinal stations (fig. 4(b)) indicates only slight variations in the local pressures between the two locations.

Figure 5 illustrates the rapid changes in local pressure coefficient which occur near the rear corner of the transition flare. Shown are the variations in pressure coefficient with Mach number for the two orifice locations immediately behind the flare corner. In order to indicate the abrupt nature of these variations, the change in Mach number for a one-second time interval, obtained from telemeter information for an early Scout firing, is noted. In addition to the extremely rapid buildup of the pressure peaks, the curves indicate a second point of interest in the magnitude of the peaks. Since the local loadings are a function of both the pressure coefficient and the dynamic pressure, it is apparent from figure 5 that the critical local loading condition for the full-scale vehicle may occur at a Mach number substantially lower than that at which the maximum dynamic pressure occurs in flight.

The effects of protuberances (antennas and wiring tunnels) are shown in figure 6 for an orifice row orientation angle of 0° and an angle of attack of 0° and are seen to be relatively slight and localized.

Body Alone

Results for the body with all protuberances removed are presented for several Mach numbers in figure 7 and indicate effects similar to those noted earlier for the simulated three-stage Scout model. The effects of angle of attack are shown in figure 8 for an orifice row orientation angle of 0° and indicate that the most noticeable variations with angle occur over the nose, transition flare, and model base flare, as would be expected. Variations of body section normal-force coefficient (multiplied by a diameter ratio) with longitudinal body station are presented for several Mach numbers in figure 9. The results indicate that the nose and flares are carrying most of the lift as would be expected. Of interest also is the fact that the lift carryover on the cylindrical portions of the model just rearward of the nose and transition flare generally increases with an increase in Mach number.

L
1
6
0
7

Figure 10 presents comparisons of the present results obtained from integrations of the plots given in figure 9 with force-test results presented in reference 6. It may be noted that good agreement is obtained for both the normal-force and pitch characteristics.

CONCLUSIONS

Results of tests of a 1/10-scale model of the upper three stages of the Scout vehicle made to determine the aerodynamic loading characteristics at transonic speeds have indicated the following:

1. Peak negative pressures associated with expansion corners at the nose and transition flare exhibit sizeable variations which occur over a relatively small Mach number range. The magnitude of the variations may cause the critical local loading condition for the full-scale vehicle to occur at a Mach number considerably lower than that at which the maximum dynamic pressure occurs in flight.

2. The addition of protuberances simulating antennas and wiring conduits had generally slight, localized effects.

3. The lift carryover from the nose and transition flare to the cylindrical portions on the model generally increased with an increase in Mach number.

Langley Research Center,
National Aeronautics and Space Administration,
Langley Field, Va., June 22, 1961.

REFERENCES

1. Robinson, Ross B., and Landrum, Emma Jean: Fin Loads and Tip-Control Hinge Moments on a 1/8-Scale Model Simulating the First Stage of the Scout Research Vehicle at a Mach Number of 2.01. NASA TM X-239, 1960.

2. Kelly, Thomas C.: Transonic Wind-Tunnel Investigation of the Fin Loads on a 1/8-Scale Model Simulating the First Stage of the Scout Research Vehicle. NASA TN D-918, 1961.

3. Jernell, Lloyd S., and Wong, Norman: Investigation of the Static Longitudinal Stability Characteristics of a 0.067-Scale Model of a Four-Stage Configuration of the Scout Research Vehicle at Mach Numbers of 2.29, 2.96, 3.96, and 4.65. NASA TN D-554, 1960.

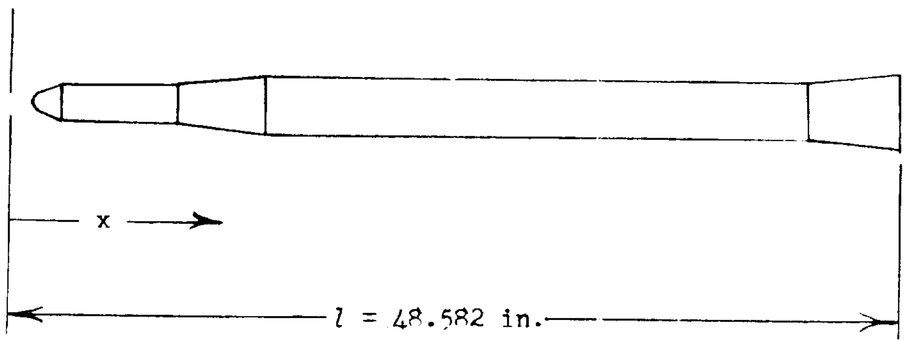
4. Jernell, Lloyd S.: Investigation of the Static Longitudinal and Lateral Stability Characteristics of a 0.10-Scale Model of a Three-Stage Configuration of the Scout Research Vehicle at Mach Numbers of 2.29, 2.96, 3.96, and 4.65. NASA TN D-711, 1961.

5. Robinson, Ross B.: Aerodynamic Characteristics in Pitch and Sideslip of a 1/15-Scale Model of the Scout Vehicle at a Mach Number of 2.01. NASA TN D-793, 1961.

6. Kelly, Thomas C.: Transonic Wind-Tunnel Investigation of the Static Longitudinal Aerodynamic Characteristics of Several Configurations of the Scout Vehicle and of a Number of Related Models. NASA TN D-794, 1961.

7. Keynton, Robert J., and Fichter, Ann B.: Investigation of the Aerodynamic Characteristics of Two Preliminary Designs of Scout Research Vehicle at Mach Numbers From 1.77 to 4.65. NASA TN D-821, 1961.

TABLE I.- MODEL ORIFICE LOCATIONS



L-1607

Model orifice station, x, in.	x/l
a1.152	0.024
1.675	.035
2.175	.045
2.675	.055
3.175	.065
b3.675	.076
b4.425	.091
4.925	.101
5.425	.112
6.425	.132
7.425	.153
8.425	.173
8.925	.184
9.425	.194
9.925	.204
10.425	.215
11.425	.235
12.425	.256
13.425	.276
c13.925	.287

Model orifice station, x, in.	x/l
14.425	0.297
c14.925	.307
15.425	.318
c15.925	.328
16.425	.338
16.925	.348
17.425	.359
17.925	.369
c18.425	.379
19.425	.400
21.425	.441
21.925	.451
23.425	.482
31.425	.647
35.425	.729
39.425	.812
41.925	.863
43.925	.904
45.925	.945
47.925	.987

a Nose stagnation orifice
b These orifices covered by radar antenna for $\phi = 0^\circ$ and 180°, simulated Scout model
c Locations of four orifices in right wiring tunnel, simulated Scout model

L
1
6
0
7

TABLE II.- ARRANGEMENT OF PROTUBERANCES ON SIMULATED SCOUT MODEL

Orifice row orientation, ϕ, deg	Forward telemeter antennas	Aft telemeter antennas	Forward radar antennas	Aft radar antenna	Wiring conduits	
					Left	Right
0	On	On	On	On	On	On
90	On	Off	Off	Off	Off	On
180	On	Off	On	Off	Off	Off

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL

$\phi=0^\circ$; $\alpha=-8^\circ$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.124	1.176	1.204	1.220	1.237	1.257	1.306	1.362
.035	.356	.416	.458	.480	.510	.546	.596	.639
.045	.249	.327	.377	.402	.433	.472	.537	.581
.055	-.107	.036	.110	.144	.182	.225	.325	.389
.065	-.243	-.805	-.705	-.657	-.603	-.542	-.409	-.323
.101	-.336	-.400	-.652	-.772	-.723	-.657	-.526	-.427
.112	.141	.099	-.091	-.212	-.175	-.123	-.049	.011
.132	.047	.069	.117	-.048	-.114	-.063	-.044	-.043
.153	.060	.075	.112	.119	-.069	-.047	-.050	-.013
.173	.120	.139	.170	.201	.165	.191	-.059	-.040
.184	.238	.264	.293	.323	.309	.338	.167	.072
.194	.220	.248	.275	.307	.302	.331	.288	.285
.204	.165	.189	.214	.246	.243	.270	.233	.240
.215	.141	.164	.188	.218	.218	.245	.215	.227
.235	.113	.136	.159	.186	.196	.219	.195	.211
.256	.112	.144	.177	.204	.225	.254	.235	.217
.276	-.049	-.019	.028	.060	.089	.128	.196	.240
.287	-.397	-.494	-.413	-.366	-.328	-.279	-.161	-.086
.297	-.108	-.200	-.364	-.329	-.293	-.255	-.188	-.136
.307	-.060	-.053	-.219	-.208	-.199	-.180	-.165	-.118
.318	-.035	-.028	-.188	-.169	-.143	-.109	-.074	-.062
.328	-.027	-.023	-.114	-.176	-.148	-.117	-.064	-.027
.338	-.018	-.015	-.013	-.182	-.154	-.124	-.064	-.027
.348	-.011	-.008	.019	-.151	-.141	-.129	-.073	-.031
.359	-.006	-.002	.025	-.116	-.104	-.099	-.085	-.042
.369	-.005	.000	.023	-.082	-.084	-.082	-.078	-.051
.379	.002	.006	.024	-.025	-.064	-.071	-.057	-.036
.400	.002	.006	.019	.021	-.034	-.057	-.045	-.020
.441	.007	.013	.019	.034	.000	-.035	-.020	-.002
.451	.008	.013	.017	.032	.002	-.031	-.009	-.001
.482	.019	.024	.028	.038	.001	-.024	.000	.005
.647	.030	.036	.039	.037	.048	.043	.022	.036
.729	.025	.031	.034	.032	.035	-.005	.011	.018
.812	.042	.049	.054	.055	.063	.032	.064	.015
.863	.049	.060	.068	.073	.087	.152	.020	.005
.904	.226	.260	.285	.297	.317	.362	.333	.287
.945	.052	.074	.093	.107	.127	.177	.161	.160
.987	-.026	-.001	.029	.050	.074	.121	.142	.150

L-1607

L-1607

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi = 0^{\circ}$; $\alpha = -4^{\circ}$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.159	1.208	1.236	1.250	1.266	1.283	1.344	1.394
.035	.282	.349	.392	.419	.451	.485	.548	.598
.045	.171	.252	.300	.328	.363	.400	.466	.514
.055	-.178	-.024	.049	.086	.126	.169	.273	.341
.065	-.479	-.891	-.788	-.734	-.678	-.614	-.470	-.381
.101	-.296	-.313	-.492	-.724	-.682	-.619	-.530	-.453
.112	.108	.110	-.076	-.213	-.179	-.128	-.080	-.028
.132	.035	.059	.112	.014	-.131	-.082	-.053	-.034
.153	.045	.065	.102	.117	.002	.003	-.082	-.043
.173	.101	.124	.153	.185	.157	.178	-.057	-.042
.184	.209	.237	.265	.294	.285	.308	.186	.124
.194	.181	.210	.235	.267	.268	.291	.258	.266
.204	.122	.146	.169	.201	.203	.224	.193	.202
.215	.097	.119	.139	.171	.176	.196	.172	.185
.235	.068	.088	.108	.139	.153	.172	.145	.166
.256	.064	.097	.125	.158	.184	.210	.163	.155
.276	-.101	-.075	-.034	.005	.042	.079	.152	.195
.287	-.426	-.539	-.472	-.420	-.371	-.321	-.194	-.114
.297	-.131	-.184	-.444	-.403	-.363	-.320	-.238	-.184
.307	-.080	-.057	-.280	-.255	-.235	-.217	-.207	-.168
.318	-.051	-.037	-.206	-.230	-.197	-.168	-.112	-.080
.328	-.044	-.032	-.064	-.216	-.188	-.164	-.111	-.065
.338	-.033	-.024	-.007	-.176	-.157	-.149	-.110	-.065
.348	-.025	-.016	.008	-.137	-.121	-.118	-.109	-.071
.359	-.020	-.012	.009	-.092	-.095	-.099	-.092	-.065
.369	-.018	-.010	.004	-.040	-.077	-.086	-.077	-.049
.379	-.012	-.004	.006	-.006	-.057	-.075	-.063	-.037
.400	-.011	-.003	.000	.014	-.031	-.060	-.052	-.027
.441	-.006	.001	-.001	.018	-.009	-.046	-.037	-.017
.451	-.006	.002	-.001	.015	-.010	-.045	-.031	-.017
.482	.007	.013	.007	.019	-.011	-.042	-.015	-.009
.647	.012	.021	.014	.016	.030	.018	-.003	.019
.729	.006	.016	.010	.012	.021	-.026	-.019	-.001
.812	.022	.033	.031	.035	.049	.092	.050	-.003
.863	.033	.049	.050	.061	.081	.138	.013	-.019
.904	.177	.205	.216	.230	.254	.294	.246	.215
.945	.021	.044	.052	.069	.096	.139	.109	.124
.987	-.051	-.032	-.021	.001	.032	.074	.089	.132

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=0°$; $\alpha=0°$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.172	1.221	1.247	1.260	1.275	1.295	1.357	1.400
.035	.202	.283	.333	.359	.390	.429	.442	.399
.045	.093	.175	.228	.257	.289	.331	.400	.450
.055	-.236	-.084	-.006	.030	.070	.117	.219	.286
.065	-.550	-.966	-.853	-.796	-.741	-.674	-.522	-.425
.101	-.252	-.262	-.361	-.642	-.614	-.551	-.514	-.455
.112	.072	.102	-.032	-.188	-.169	-.116	-.085	-.045
.132	.027	.051	.118	.037	-.128	-.077	-.065	-.029
.153	.040	.058	.104	.118	.020	.048	-.073	-.050
.173	.090	.114	.150	.180	.148	.180	-.046	-.031
.184	.175	.208	.245	.272	.254	.287	.204	.171
.194	.145	.173	.207	.239	.230	.262	.229	.241
.204	.088	.108	.138	.172	.163	.194	.164	.173
.215	.062	.079	.107	.139	.134	.163	.140	.152
.235	.031	.046	.074	.105	.110	.137	.104	.128
.256	.023	.049	.088	.122	.140	.173	.120	.110
.276	-.144	-.140	-.078	-.040	-.011	.031	.098	.134
.287	-.402	-.587	-.507	-.453	-.412	-.357	-.228	-.155
.297	-.142	-.162	-.515	-.470	-.437	-.391	-.304	-.241
.307	-.087	-.076	-.309	-.293	-.273	-.239	-.189	-.151
.318	-.060	-.052	-.129	-.251	-.233	-.200	-.139	-.093
.328	-.049	-.043	-.035	-.202	-.199	-.183	-.145	-.093
.338	-.038	-.034	-.003	-.154	-.153	-.140	-.134	-.093
.348	-.030	-.025	.006	-.108	-.121	-.114	-.102	-.076
.359	-.025	-.021	.006	-.061	-.098	-.096	-.086	-.056
.369	-.023	-.019	.003	-.025	-.081	-.087	-.072	-.044
.379	-.017	-.013	.003	-.003	-.062	-.074	-.061	-.033
.400	-.015	-.012	-.002	.014	-.035	-.062	-.050	-.030
.441	-.011	-.007	-.003	.015	-.016	-.051	-.042	-.021
.451	-.010	-.006	-.004	.012	-.019	-.052	-.033	-.020
.482	.001	.005	.005	.017	-.018	-.050	-.023	-.020
.647	.007	.010	.011	.014	.017	.010	-.016	-.008
.729	.002	.006	.008	.010	.009	-.031	-.029	.005
.812	.019	.026	.030	.036	.040	.054	.052	-.003
.863	.030	.043	.052	.065	.076	.141	.007	-.009
.904	.137	.155	.173	.190	.203	.250	.194	-.028
.945	-.004	.013	.025	.043	.060	.115	.076	.180
.987	-.076	-.066	-.060	-.040	-.024	.026	.041	.089

L-1607

L-1607

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=0^\circ$; $\alpha=4^\circ$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.168	1.216	1.244	1.259	1.272	1.291	1.351	1.396
.035	.098	.079	.083	.105	.130	.171	.116	.097
.045	.020	.106	.164	.195	.227	.269	.346	.398
.055	-.296	-.146	-.067	-.028	.009	.056	.156	.219
.065	-.546	-1.014	-.894	-.833	-.779	-.713	-.545	-.444
.101	-.195	-.207	-.288	-.565	-.549	-.491	-.473	-.433
.112	.036	.082	.004	-.158	-.147	-.098	-.080	-.052
.132	.022	.050	.120	.046	-.090	-.050	-.073	-.038
.153	.038	.059	.110	.120	.046	.066	-.053	-.033
.173	.081	.109	.147	.176	.153	.176	.000	-.010
.184	.141	.180	.224	.246	.235	.261	.189	.181
.194	.115	.147	.186	.217	.211	.236	.202	.215
.204	.061	.084	.117	.150	.148	.170	.144	.158
.215	.035	.053	.082	.116	.117	.137	.117	.132
.235	.003	.019	.050	.082	.093	.113	.075	.097
.256	-.013	.015	.060	.091	.115	.143	.099	.089
.276	-.159	-.184	-.108	-.069	-.035	.004	.071	.111
.287	-.355	-.619	-.532	-.486	-.440	-.388	-.259	-.183
.297	-.143	-.146	-.547	-.488	-.446	-.407	-.315	-.256
.307	-.092	-.081	-.295	-.320	-.292	-.262	-.194	-.146
.318	-.063	-.052	-.109	-.249	-.231	-.220	-.171	-.120
.328	-.052	-.041	-.034	-.181	-.161	-.156	-.147	-.111
.338	-.039	-.030	-.003	-.139	-.125	-.125	-.108	-.083
.348	-.031	-.021	.007	-.098	-.096	-.101	-.082	-.060
.359	-.026	-.017	.008	-.059	-.075	-.087	-.072	-.049
.369	-.023	-.014	.005	-.029	-.060	-.077	-.067	-.042
.379	-.017	-.008	.006	-.006	-.044	-.066	-.058	-.036
.400	-.016	-.007	.000	.008	-.028	-.057	-.050	-.026
.441	-.012	-.003	-.003	.012	-.017	-.050	-.033	-.010
.451	-.010	-.003	-.003	.009	-.018	-.050	-.031	-.008
.482	-.001	.008	.006	.015	-.004	-.044	-.020	-.007
.647	.003	.015	.011	.010	.022	.009	-.017	.006
.729	.000	.010	.009	.006	.015	-.032	.003	.000
.812	.017	.030	.031	.032	.048	.083	.026	-.006
.863	.025	.043	.050	.058	.079	.134	.012	-.026
.904	.115	.144	.164	.174	.196	.239	.186	.183
.945	-.023	-.007	.001	.014	.042	.091	.078	.084
.987	-.096	-.089	-.088	-.076	-.052	-.007	.039	.069

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=90^\circ$; $\alpha=-4^\circ$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.173	1.220	1.246	1.260	1.276	1.294	1.353	1.400
.035	.189	.255	.304	.330	.359	.403	.459	.515
.045	.085	.165	.220	.246	.280	.320	.386	.434
.055	-.234	-.083	-.005	.031	.071	.116	.220	.287
.065	-.595	-.965	-.849	-.794	-.737	-.675	-.523	-.432
.076	-.235	-.460	-.645	-.602	-.553	-.494	-.387	-.311
.091	-.047	.015	-.260	-.267	-.238	-.188	-.206	-.168
.101	-.042	-.006	-.186	-.270	-.234	-.183	-.140	-.091
.112	-.023	.005	.005	-.289	-.254	-.202	-.175	-.134
.132	.004	.021	.076	.018	-.155	-.105	-.130	-.103
.153	.029	.040	.084	.096	-.020	.001	-.080	-.064
.173	.082	.099	.138	.165	.132	.164	-.064	-.044
.184	.177	.209	.247	.270	.250	.282	.178	.137
.194	.145	.169	.207	.237	.228	.258	.222	.229
.204	.082	.098	.131	.164	.154	.184	.150	.163
.215	.055	.070	.099	.132	.126	.154	.124	.137
.235	.021	.033	.062	.091	.095	.120	.095	.112
.256	-.018	-.001	.035	.063	.080	.109	.083	.095
.276	-.128	-.117	-.070	-.036	-.008	.028	.083	.117
.287	-.398	-.556	-.471	-.427	-.387	-.340	-.232	-.168
.297	-.143	-.179	-.447	-.414	-.382	-.341	-.256	-.206
.307	-.090	-.079	-.340	-.318	-.288	-.253	-.189	-.147
.318	-.064	-.058	-.181	-.263	-.242	-.212	-.161	-.121
.328	-.054	-.052	-.046	-.217	-.202	-.180	-.145	-.110
.338	-.043	-.043	-.012	-.173	-.163	-.148	-.123	-.092
.348	-.036	-.036	-.002	-.132	-.135	-.124	-.105	-.076
.359	-.032	-.032	-.004	-.085	-.113	-.110	-.096	-.069
.369	-.031	-.030	-.007	-.039	-.100	-.101	-.087	-.059
.379	-.025	-.025	-.006	-.015	-.080	-.090	-.079	-.053
.400	-.022	-.022	-.010	.002	-.050	-.077	-.070	-.046
.441	-.017	-.017	-.011	.002	-.013	-.063	-.036	-.032
.451	-.015	-.016	-.010	.002	-.016	-.060	-.034	-.030
.482	-.001	-.002	.000	.007	-.016	-.054	-.030	-.026
.647	.003	.003	.005	.003	.013	.008	-.032	-.012
.729	-.006	-.005	-.002	-.006	-.001	-.042	-.017	-.020
.812	.011	.015	.020	.020	.032	.070	.016	-.022
.863	.022	.031	.043	.048	.068	.127	-.005	-.033
.904	.142	.161	.184	.197	.219	.258	.216	.195
.945	-.022	-.011	.005	.019	.045	.092	.070	.083
.987	-.099	-.095	-.078	-.061	-.033	.012	.043	.093
Wiring tunnel orifices								
.287	-.323	-.395	-.464	-.433	-.398	-.361	-.285	-.234
.307	-.101	-.085	-.323	-.303	-.282	-.252	-.203	-.163
.328	-.061	-.058	-.056	-.225	-.210	-.185	-.144	-.110
.379	-.032	-.033	-.016	-.023	-.097	-.102	-.091	-.064

L-1607

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=90^{\circ};\ \alpha=0^{\circ}$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.173	1.220	1.246	1.260	1.276	1.294	1.355	1.401
.035	.205	.281	.333	.358	.389	.445	.464	.397
.045	.092	.175	.226	.255	.288	.331	.398	.447
.055	-.226	-.074	.000	.038	.076	.124	.226	.291
.065	-.587	-.964	-.850	-.794	-.739	-.670	-.519	-.426
.076	-.256	-.416	-.651	-.606	-.557	-.495	-.386	-.310
.091	-.030	.036	-.228	-.256	-.235	-.181	-.219	-.179
.101	-.024	.019	-.135	-.258	-.225	-.170	-.119	-.065
.112	-.009	.022	.017	-.258	-.224	-.168	-.151	-.115
.132	.017	.035	.089	.030	-.134	-.080	-.091	-.056
.153	.041	.055	.096	.107	-.007	.022	-.065	-.048
.173	.093	.114	.149	.178	.142	.179	-.050	-.032
.184	.179	.219	.253	.277	.255	.291	.182	.145
.194	.154	.184	.219	.250	.237	.272	.235	.240
.204	.092	.112	.140	.174	.161	.194	.160	.171
.215	.066	.082	.107	.140	.131	.162	.131	.146
.235	.030	.045	.069	.099	.099	.129	.101	.117
.256	-.005	.012	.042	.073	.086	.117	.089	.105
.276	-.107	-.085	-.033	.004	.030	.071	.121	.146
.287	-.391	-.535	-.449	-.403	-.362	-.309	-.195	-.130
.297	-.132	-.158	-.477	-.431	-.395	-.347	-.251	-.194
.307	-.078	-.060	-.343	-.313	-.291	-.250	-.202	-.163
.318	-.051	-.043	-.147	-.234	-.217	-.183	-.140	-.107
.328	-.043	-.035	-.024	-.196	-.184	-.155	-.123	-.091
.338	-.030	-.027	.003	-.158	-.151	-.129	-.108	-.077
.348	-.022	-.018	.011	-.121	-.124	-.106	-.091	-.062
.359	-.018	-.016	.008	-.069	-.106	-.093	-.081	-.054
.369	-.015	-.014	.004	-.023	-.090	-.082	-.071	-.046
.379	-.010	-.008	.005	-.001	-.071	-.072	-.062	-.037
.400	-.008	-.001	.000	.014	-.040	-.060	-.051	-.028
.441	-.005	-.002	-.001	.013	-.003	-.047	-.028	-.021
.451	-.003	-.001	-.001	.011	-.006	-.047	-.024	-.021
.482	.009	.011	.009	.016	-.006	-.043	-.017	-.013
.647	.012	.016	.014	.012	.021	.021	-.020	.006
.729	.003	.006	.005	.003	.006	-.029	-.030	-.015
.812	.021	.028	.028	.029	.039	.084	.055	-.010
.863	.036	.046	.052	.060	.078	.141	.007	-.026
.904	.151	.169	.187	.201	.222	.266	.215	.192
.945	-.003	.012	.021	.036	.061	.112	.074	.088
.987	-.079	-.071	-.065	-.050	-.025	.023	.036	.102
Wiring tunnel orifices								
.287	-.295	-.447	-.395	-.346	-.322	-.275	-.206	-.166
.307	-.088	-.078	-.349	-.321	-.296	-.253	-.188	-.146
.328	-.047	-.042	-.033	-.204	-.193	-.166	-.140	-.104
.379	-.017	-.015	-.003	-.007	-.079	-.078	-.067	-.042

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=90^{\circ}$; $\alpha=4^{\circ}$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.155	1.205	1.231	1.246	1.260	1.278	1.339	1.384
.035	.187	.260	.305	.334	.362	.402	.461	.449
.045	.078	.162	.212	.243	.273	.315	.380	.428
.055	-.237	-.082	-.009	.031	.067	.113	.216	.285
.065	-.594	-.966	-.854	-.796	-.743	-.677	-.527	-.431
.076	-.262	-.459	-.651	-.605	-.558	-.498	-.393	-.317
.091	-.051	.018	-.253	-.262	-.241	-.189	-.215	-.180
.101	-.042	-.004	-.179	-.250	-.218	-.166	-.125	-.078
.112	-.026	.006	.001	-.299	-.270	-.215	-.178	-.131
.132	.003	.023	.072	.028	-.136	-.104	-.120	-.108
.153	.027	.042	.081	.100	-.023	.000	-.083	-.062
.173	.080	.102	.135	.168	.129	.164	-.068	-.046
.184	.181	.217	.247	.274	.250	.283	.175	.134
.194	.145	.176	.206	.240	.225	.258	.220	.230
.204	.083	.105	.132	.165	.153	.184	.150	.164
.215	.056	.076	.099	.133	.124	.153	.123	.139
.235	.020	.040	.058	.091	.089	.117	.092	.110
.256	-.017	.004	.028	.061	.071	.101	.073	.092
.276	-.115	-.084	-.033	.004	.029	.067	.106	.123
.287	-.393	-.544	-.445	-.395	-.354	-.302	-.188	-.123
.297	-.146	-.191	-.467	-.419	-.381	-.333	-.229	-.166
.307	-.092	-.074	-.375	-.348	-.328	-.288	-.224	-.169
.318	-.066	-.055	-.183	-.255	-.241	-.209	-.176	-.136
.328	-.056	-.048	-.049	-.212	-.202	-.175	-.146	-.111
.338	-.046	-.040	-.013	-.171	-.168	-.148	-.125	-.092
.348	-.037	-.031	-.002	-.130	-.140	-.124	-.107	-.075
.359	-.034	-.028	-.007	-.077	-.122	-.111	-.098	-.067
.369	-.031	-.025	-.008	-.031	-.105	-.100	-.087	-.060
.379	-.028	-.021	-.010	-.008	-.090	-.089	-.078	-.052
.400	-.024	-.019	-.014	.005	-.057	-.078	-.069	-.046
.441	-.019	-.014	-.015	.004	-.017	-.063	-.046	-.033
.451	-.018	-.014	-.014	.000	-.020	-.063	-.043	-.032
.482	-.005	-.001	-.004	.007	-.019	-.058	-.035	-.022
.647	.000	.004	.002	.003	.011	.006	-.041	-.006
.729	-.012	-.005	-.010	-.007	-.008	-.046	-.046	-.026
.812	.008	.016	.016	.021	.028	.078	.037	-.020
.863	.020	.034	.039	.050	.065	.127	-.008	-.041
.904	.153	.178	.192	.210	.229	.270	.228	.200
.945	-.024	-.007	.003	.019	.041	.090	.056	.078
.987	-.100	-.088	-.078	-.057	-.031	.014	.033	.089
Wiring tunnel orifices								
.287	-.341	-.531	-.508	-.461	-.434	-.384	-.310	-.251
.307	-.101	-.084	-.387	-.353	-.327	-.288	-.225	-.178
.328	-.059	-.054	-.036	-.212	-.203	-.182	-.150	-.114
.379	-.028	-.023	-.012	-.010	-.082	-.089	-.078	-.056

L-1607

L-1607

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

ϕ=90°; α=8°								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.114	1.166	1.194	1.210	1.224	1.245	1.305	1.353
.035	.128	.184	.223	.252	.280	.320	.362	.392
.045	.041	.120	.171	.202	.233	.275	.336	.370
.055	-.267	-.117	-.044	-.004	.033	.079	.181	.242
.065	-.598	-.973	-.863	-.804	-.751	-.687	-.537	-.448
.076	-.205	-.306	-.648	-.604	-.559	-.499	-.397	-.330
.091	-.112	-.084	-.351	-.328	-.296	-.243	-.201	-.173
.101	-.094	-.094	-.269	-.280	-.247	-.194	-.193	-.179
.112	-.072	-.064	-.032	-.385	-.349	-.294	-.196	-.137
.132	-.037	-.024	.030	-.010	-.241	-.189	-.217	-.177
.153	-.007	.005	.043	.067	-.061	-.047	-.125	-.111
.173	.048	.064	.097	.134	.099	.131	-.104	-.088
.184	.132	.163	.196	.223	.202	.233	.135	.107
.194	.096	.126	.157	.190	.176	.209	.173	.181
.204	.034	.058	.084	.119	.109	.139	.110	.118
.215	.010	.030	.054	.088	.083	.110	.086	.098
.235	-.022	-.007	.015	.048	.049	.076	.054	.070
.256	-.056	-.041	-.012	.020	.031	.059	.037	.057
.276	-.144	-.110	-.056	-.019	.008	.045	.072	.072
.287	-.459	-.565	-.471	-.418	-.374	-.322	-.197	-.131
.297	-.177	-.246	-.478	-.434	-.399	-.349	-.247	-.181
.307	-.126	-.105	-.425	-.395	-.365	-.323	-.240	-.184
.318	-.100	-.090	-.264	-.302	-.289	-.264	-.223	-.180
.328	-.092	-.088	-.085	-.258	-.244	-.221	-.187	-.158
.338	-.082	-.081	-.048	-.227	-.216	-.198	-.164	-.138
.348	-.070	-.071	-.040	-.189	-.186	-.177	-.146	-.125
.359	-.069	-.068	-.045	-.142	-.163	-.162	-.142	-.118
.369	-.066	-.066	-.048	-.076	-.142	-.147	-.134	-.112
.379	-.062	-.060	-.048	-.044	-.125	-.134	-.125	-.102
.400	-.058	-.058	-.050	-.031	-.093	-.123	-.111	-.092
.441	-.052	-.053	-.050	-.032	-.057	-.103	-.082	-.068
.451	-.053	-.053	-.051	-.036	-.061	-.104	-.080	-.067
.482	-.038	-.038	-.039	-.028	-.060	-.095	-.069	-.061
.647	-.030	-.029	-.029	-.029	-.021	-.029	-.071	-.038
.729	-.045	-.043	-.044	-.041	-.042	-.085	-.066	-.061
.812	-.021	-.018	-.015	-.010	-.002	.037	-.002	-.052
.863	-.010	-.001	.008	.020	.035	.101	-.054	-.071
.904	.137	.161	.180	.195	.216	.260	.232	.201
.945	-.063	-.052	-.038	-.021	.001	.052	.046	.051
.987	-.141	-.136	-.119	-.097	-.073	-.023	.011	.062
Wiring tunnel orifices								
.287	-.362	-.645	-.578	-.522	-.488	-.445	-.344	-.295
.307	-.123	-.113	-.390	-.391	-.363	-.328	-.253	-.214
.328	-.078	-.078	-.056	-.236	-.228	-.217	-.180	-.156
.379	-.037	-.039	-.022	-.018	-.082	-.101	-.088	-.069

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=180^{\circ}$; $\alpha=-8^{\circ}$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.145	1.195	1.227	1.239	1.258	1.274	1.335	1.380
.035	-.138	-.169	-.137	-.098	-.062	-.021	-.012	-.049
.045	-.038	.046	.110	.150	.186	.223	.284	.311
.055	-.349	-.207	-.125	-.080	-.037	.005	.108	.165
.065	-.533	-.849	-.907	-.841	-.780	-.720	-.538	-.443
.101	-.150	-.120	-.337	-.523	-.532	-.477	-.452	-.420
.112	.017	.015	-.024	-.127	-.134	-.089	-.063	-.037
.132	.017	.033	.108	.066	-.066	-.029	-.059	-.039
.153	.033	.044	.104	.124	.037	.061	-.036	-.024
.173	.067	.083	.133	.167	.132	.158	.022	.004
.184	.116	.131	.198	.231	.210	.237	.179	.172
.194	.095	.113	.169	.207	.195	.220	.191	.200
.204	.039	.049	.096	.138	.129	.152	.126	.137
.215	.012	.018	.061	.104	.098	.120	.099	.112
.235	-.028	-.027	.014	.055	.062	.081	.067	.079
.256	-.068	-.075	-.029	.013	.030	.052	.053	.068
.276	-.141	-.177	-.106	-.063	-.036	-.007	.030	.053
.287	-.321	-.537	-.494	-.441	-.397	-.353	-.242	-.182
.297	-.133	-.168	-.454	-.391	-.344	-.313	-.253	-.238
.307	-.087	-.099	-.327	-.310	-.276	-.247	-.172	-.138
.318	-.059	-.067	-.121	-.221	-.202	-.189	-.144	-.109
.328	-.049	-.056	-.048	-.155	-.149	-.141	-.119	-.093
.338	-.038	-.045	-.016	-.105	-.113	-.110	-.094	-.073
.348	-.030	-.036	.000	-.057	-.085	-.086	-.073	-.055
.359	-.026	-.033	.002	-.022	-.070	-.076	-.063	-.045
.369	-.024	-.031	-.001	-.001	-.057	-.069	-.053	-.038
.379	-.018	-.026	.001	.013	-.041	-.060	-.047	-.028
.400	-.016	-.024	-.006	.021	-.023	-.055	-.042	-.023
.441	-.012	-.019	-.009	.017	-.004	-.043	-.020	-.018
.451	-.012	-.019	-.009	.015	-.004	-.037	-.016	-.016
.482	-.001	-.008	.003	.022	.006	-.022	-.006	-.008
.647	.002	-.004	.007	.022	.031	.016	.020	.016
.729	-.008	-.014	-.006	.011	.015	-.027	-.013	-.003
.812	.006	.003	.015	.033	.046	.080	.007	.028
.863	.009	.012	.030	.053	.073	.119	-.011	-.037
.904	.131	.146	.175	.201	.226	.265	.262	.233
.945	-.050	-.051	-.028	-.001	.026	.069	.071	.047
.987	-.128	-.141	-.124	-.096	-.069	-.024	.011	-.008

L-1607

L-1607

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=180^\circ$; $\alpha=-4^\circ$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.167	1.215	1.244	1.259	1.272	1.292	1.352	1.396
.035	.106	.086	.093	.126	.157	.196	.145	.118
.045	.025	.105	.164	.201	.234	.276	.351	.402
.055	-.284	-.136	-.057	-.015	.025	.072	.171	.232
.065	-.547	-1.013	-.890	-.828	-.771	-.705	-.541	-.442
.101	-.187	-.225	-.382	-.581	-.564	-.501	-.482	-.438
.112	.039	.083	-.073	-.163	-.150	-.097	-.079	-.047
.132	.021	.042	.113	.041	-.100	-.051	-.070	-.038
.153	.037	.049	.107	.118	.020	.052	-.049	-.035
.173	.080	.099	.143	.175	.137	.173	-.014	-.017
.184	.141	.176	.222	.253	.232	.266	.191	.178
.194	.117	.145	.187	.221	.209	.241	.206	.215
.204	.062	.076	.114	.152	.140	.171	.137	.148
.215	.035	.045	.079	.118	.109	.140	.111	.124
.235	-.003	.002	.035	.073	.074	.100	.080	.096
.256	-.044	-.041	-.006	.032	.044	.073	.064	.082
.276	-.128	-.136	-.083	-.042	-.019	.017	.044	.067
.287	-.340	-.561	-.474	-.422	-.381	-.330	-.226	-.169
.297	-.130	-.146	-.425	-.373	-.338	-.297	-.231	-.195
.307	-.084	-.086	-.337	-.303	-.273	-.238	-.171	-.127
.318	-.057	-.059	-.160	-.230	-.213	-.188	-.144	-.106
.328	-.047	-.049	-.060	-.175	-.167	-.147	-.120	-.089
.338	-.036	-.039	-.019	-.133	-.134	-.120	-.097	-.069
.348	-.028	-.030	-.003	-.086	-.107	-.098	-.079	-.054
.359	-.022	-.027	-.001	-.041	-.089	-.085	-.071	-.045
.369	-.021	-.024	-.003	-.014	-.073	-.075	-.064	-.038
.379	-.016	-.019	-.001	.004	-.056	-.064	-.056	-.031
.400	-.014	-.017	-.007	.015	-.031	-.056	-.048	-.026
.441	-.010	-.013	-.009	.014	-.005	-.049	-.027	-.015
.451	-.009	-.012	.013	.012	-.007	-.048	-.022	-.012
.482	.001	.000	.000	.019	-.001	-.038	-.011	-.008
.647	.005	.005	.005	.015	.023	.021	-.005	.001
.729	.001	-.002	-.001	.010	.012	-.024	-.001	-.003
.812	.015	.017	.020	.033	.044	.072	.018	-.007
.863	.026	.031	.042	.061	.078	.135	.011	-.021
.904	.117	.146	.165	.186	.206	.251	.206	.197
.945	-.025	-.022	-.008	.017	.040	.092	.089	.074
.987	-.108	-.114	-.108	-.085	-.064	-.007	.020	.051

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi = 180^\circ$; $\alpha = 0^\circ$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.171	1.219	1.242	1.261	1.276	1.294	1.354	1.398
.035	.213	.275	.330	.368	.399	.436	.483	.435
.045	.099	.174	.226	.266	.297	.337	.404	.448
.055	-.219	-.073	.002	.049	.085	.131	.233	.295
.065	-.550	-.961	-.847	-.782	-.728	-.665	-.512	-.423
.101	-.242	-.267	-.499	-.645	-.613	-.551	-.522	-.470
.112	.080	.107	-.119	-.190	-.164	-.112	-.080	-.043
.132	.029	.044	.101	.018	-.130	-.077	-.065	-.032
.153	.042	.048	.097	.113	-.010	.023	-.073	-.056
.173	.091	.104	.142	.179	.138	.171	-.049	-.037
.184	.182	.205	.240	.278	.255	.288	.199	.155
.194	.152	.173	.206	.248	.233	.266	.235	.241
.204	.093	.102	.133	.177	.162	.193	.161	.168
.215	.066	.071	.100	.144	.132	.162	.134	.145
.235	.028	.032	.057	.100	.098	.126	.105	.118
.256	-.012	-.009	.020	.063	.072	.100	.092	.104
.276	-.104	-.094	-.050	-.003	.018	.053	.077	.098
.287	-.394	-.527	-.445	-.386	-.346	-.297	-.193	-.139
.297	-.140	-.206	-.430	-.379	-.344	-.301	-.216	-.169
.307	-.077	-.073	-.327	-.289	-.266	-.230	-.174	-.134
.318	-.051	-.055	-.221	-.220	-.204	-.172	-.132	-.095
.328	-.041	-.049	-.090	-.187	-.178	-.150	-.114	-.082
.338	-.031	-.040	-.030	-.149	-.147	-.126	-.099	-.071
.348	-.022	-.033	-.010	-.109	-.121	-.103	-.083	-.058
.359	-.021	-.030	-.005	-.056	-.103	-.090	-.076	-.049
.369	-.018	-.028	-.007	-.017	-.089	-.080	-.069	-.043
.379	-.016	-.023	-.007	.004	-.072	-.069	-.061	-.037
.400	-.011	-.021	-.012	.016	-.044	-.056	-.053	-.030
.441	-.005	-.016	-.014	.016	-.001	-.046	-.032	-.020
.451	-.005	-.016	-.015	.014	-.001	-.046	-.024	-.017
.482	.008	-.003	-.006	.020	-.001	-.041	-.016	-.010
.647	.012	.002	-.002	.015	.021	.021	-.006	.007
.729	.003	-.004	-.006	.011	.012	-.023	-.018	.003
.812	.021	.015	.015	.033	.041	.095	.036	-.013
.863	.033	.033	.039	.064	.079	.137	.002	-.017
.904	.154	.164	.175	.205	.225	.265	.217	.192
.945	.000	.003	.016	.046	.069	.116	.082	.091
.987	-.080	-.084	-.074	-.041	-.018	.035	.069	.097

L-1607

L-1607

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Continued

$\phi=180^{\circ}$; $\alpha=4^{\circ}$								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.155	1.205	1.232	1.249	1.263	1.282	1.342	1.387
.035	.287	.349	.390	.426	.454	.490	.545	.584
.045	.172	.249	.300	.339	.369	.406	.472	.513
.055	-.165	-.016	.058	.104	.140	.184	.286	.349
.065	-.492	-.889	-.781	-.718	-.665	-.603	-.460	-.376
.101	-.298	-.327	-.600	-.716	-.680	-.614	-.542	-.472
.112	.117	.105	-.136	-.197	-.168	-.116	-.071	-.023
.132	.034	.047	.100	-.002	-.129	-.078	-.051	-.033
.153	.043	.052	.097	.115	-.046	-.013	-.083	-.041
.173	.097	.112	.148	.187	.143	.176	-.054	-.040
.184	.210	.228	.263	.301	.279	.313	.179	.108
.194	.182	.204	.235	.277	.267	.298	.263	.265
.204	.122	.137	.166	.208	.198	.228	.194	.197
.215	.097	.108	.136	.178	.171	.200	.172	.175
.235	.058	.070	.096	.137	.140	.166	.145	.155
.256	.020	.033	.061	.101	.114	.142	.130	.144
.276	-.076	-.047	-.005	.040	.063	.097	.117	.136
.287	-.431	-.491	-.410	-.355	-.314	-.265	-.160	-.105
.297	-.126	-.292	-.384	-.337	-.297	-.259	-.173	-.133
.307	-.074	-.058	-.307	-.264	-.236	-.200	-.137	-.099
.318	-.048	-.040	-.234	-.213	-.195	-.166	-.116	-.074
.328	-.040	-.038	-.110	-.172	-.159	-.133	-.106	-.072
.338	-.030	-.031	-.023	-.152	-.139	-.117	-.086	-.055
.348	-.022	-.023	.000	-.124	-.120	-.103	-.075	-.041
.359	-.019	-.021	.004	-.080	-.103	-.092	-.071	-.041
.369	-.018	-.020	.001	-.016	-.086	-.081	-.065	-.039
.379	-.013	-.013	.001	.012	-.068	-.069	-.055	-.033
.400	-.012	-.013	-.005	.025	-.038	-.055	-.046	-.022
.441	-.007	-.008	-.005	.024	.009	-.040	-.030	-.013
.451	-.006	-.007	-.005	.021	.006	-.038	-.022	-.012
.482	.009	.006	.006	.028	.006	-.034	-.005	-.002
.647	.014	.012	.011	.027	.035	.036	.014	.025
.729	.003	.003	.001	.019	.020	-.013	-.019	-.001
.812	.020	.019	.021	.038	.046	.066	.088	-.002
.863	.027	.033	.038	.059	.073	.139	.011	-.019
.904	.200	.225	.244	.270	.292	.336	.291	.254
.945	.015	.028	.042	.071	.093	.142	.104	.116
.987	-.067	-.055	-.032	.001	.029	.076	.070	.090

TABLE III.- PRESSURE COEFFICIENTS FOR SIMULATED SCOUT MODEL - Concluded

ϕ=180°; α=8°								
x/l	M=0.800	M=0.900	M=0.950	M=0.975	M=1.000	M=1.030	M=1.130	M=1.200
.024	1.119	1.173	1.200	1.217	1.232	1.250	1.313	1.359
.035	.363	.418	.462	.495	.520	.553	.604	.640
.045	.252	.326	.378	.413	.442	.475	.544	.582
.055	-.095	.045	.118	.161	.195	.236	.338	.398
.065	-.232	-.798	-.696	-.636	-.586	-.529	-.395	-.319
.101	-.336	-.421	-.756	-.761	-.717	-.653	-.526	-.440
.112	.139	.082	-.175	-.188	-.155	-.106	-.034	.015
.132	.047	.057	.100	-.044	-.110	-.060	-.054	-.067
.153	.058	.062	.107	.124	-.104	-.059	-.048	-.013
.173	.119	.126	.161	.203	.153	.185	-.066	-.039
.184	.240	.252	.288	.327	.304	.336	.152	.054
.194	.225	.242	.274	.315	.305	.334	.289	.281
.204	.167	.180	.208	.251	.240	.271	.235	.236
.215	.142	.153	.180	.222	.217	.245	.215	.220
.235	.109	.118	.144	.183	.186	.213	.194	.196
.256	.069	.080	.110	.149	.161	.190	.179	.192
.276	-.027	.000	.044	.086	.110	.143	.167	.185
.287	-.399	-.456	-.371	-.315	-.275	-.227	-.121	-.065
.297	-.098	-.303	-.331	-.292	-.257	-.219	-.141	-.098
.307	-.051	-.057	-.239	-.200	-.179	-.148	-.100	-.063
.318	-.026	-.031	-.194	-.158	-.141	-.112	-.072	-.040
.328	-.018	-.026	-.162	-.147	-.130	-.103	-.065	-.036
.338	-.009	-.019	-.039	-.134	-.119	-.096	-.057	-.028
.348	.000	-.011	.011	-.115	-.103	-.085	-.049	-.016
.359	.003	-.009	.020	-.099	-.092	-.080	-.050	-.019
.369	.004	-.007	.017	-.038	-.080	-.073	-.047	-.019
.379	.009	-.001	.021	.027	-.062	-.062	-.038	-.015
.400	.010	-.001	.014	.044	-.031	-.048	-.031	-.015
.441	.015	.005	.013	.042	.024	-.024	-.014	-.002
.451	.016	.005	.013	.041	.025	-.022	-.003	.002
.482	.030	.021	.025	.049	.025	-.016	.015	.013
.647	.036	.028	.032	.047	.056	.061	.026	.043
.729	.024	.016	.020	.036	.036	.004	.004	.017
.812	.038	.030	.037	.055	.061	.003	.081	.013
.863	.046	.041	.050	.072	.085	.152	.026	-.008
.904	.242	.266	.292	.318	.339	.382	.349	.295
.945	.049	.057	.078	.108	.129	.177	.145	.149
.987	-.043	-.029	.005	.039	.066	.111	.119	.115

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE

$\phi = 0^{\circ}$; $\alpha = -8^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.123	1.177	1.203	1.235	1.254	1.363
.035	.355	.412	.456	.513	.545	.642
.045	.252	.327	.379	.439	.474	.584
.055	-.114	.029	.104	.179	.221	.386
.065	-.252	-.814	-.709	-.603	-.542	-.325
.076	-.059	-.491	-.445	-.360	-.306	-.168
.091	-.020	.025	-.299	-.229	-.178	-.085
.101	-.003	.033	-.254	-.189	-.140	-.059
.112	.010	.027	-.191	-.171	-.121	-.050
.132	.033	.038	.088	-.143	-.094	-.039
.153	.057	.059	.109	-.085	-.037	-.038
.173	.119	.127	.171	.164	.193	-.034
.184	.243	.269	.312	.327	.357	.052
.194	.224	.246	.288	.313	.344	.285
.204	.165	.180	.216	.243	.273	.241
.215	.141	.152	.185	.214	.243	.228
.235	.105	.114	.146	.182	.208	.203
.256	.067	.077	.111	.156	.184	.195
.276	-.030	-.001	.049	.110	.142	.181
.287	-.400	-.460	-.365	-.276	-.228	-.063
.297	-.099	-.324	-.348	-.273	-.231	-.102
.307	-.050	-.057	-.256	-.195	-.160	-.068
.318	-.026	-.032	-.206	-.153	-.122	-.045
.328	-.018	-.027	-.182	-.138	-.110	-.039
.338	-.009	-.019	-.108	-.124	-.099	-.030
.348	.001	-.011	-.021	-.111	-.089	-.023
.359	.004	-.008	.017	-.101	-.086	-.024
.369	.004	-.007	.020	-.087	-.077	-.024
.379	.011	-.001	.024	-.072	-.064	-.019
.400	.010	-.001	.015	-.047	-.052	-.015
.441	.015	.004	.011	.028	-.028	-.001
.451	.016	.005	.009	.028	-.025	.004
.482	.033	.021	.021	.027	-.018	.011
.647	.037	.026	.025	.053	.060	.039
.729	.028	.018	.019	.035	.002	.016
.812	.042	.033	.034	.060	.089	.013
.863	.050	.044	.050	.088	.145	-.001
.904	.235	.256	.279	.328	.369	.285
.945	.049	.055	.073	.124	.169	.153
.987	-.044	-.032	.001	.062	.105	.122

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi = 0^\circ$; $\alpha = -4^\circ$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.158	1.208	1.242	1.262	1.284	1.388
.035	.284	.342	.402	.443	.486	.599
.045	.174	.248	.313	.359	.404	.515
.055	-.179	-.032	.057	.117	.167	.333
.065	-.425	-.904	-.780	-.687	-.616	-.383
.076	-.070	-.625	-.549	-.476	-.410	-.246
.091	-.027	.032	-.367	-.311	-.250	-.148
.101	-.012	.048	-.291	-.245	-.185	-.108
.112	-.001	.033	-.119	-.204	-.145	-.086
.132	.021	.031	.079	-.141	-.083	-.061
.153	.045	.047	.107	-.076	-.022	-.045
.173	.104	.112	.174	.143	.185	-.038
.184	.213	.238	.293	.285	.326	.101
.194	.186	.206	.268	.257	.308	.261
.204	.125	.135	.187	.191	.229	.202
.215	.098	.104	.152	.159	.196	.181
.235	.063	.066	.115	.125	.162	.157
.256	.023	.030	.077	.102	.138	.141
.276	-.074	-.049	.016	.058	.100	.132
.287	-.411	-.495	-.385	-.314	-.257	-.103
.297	-.119	-.374	-.380	-.321	-.268	-.132
.307	-.068	-.062	-.304	-.257	-.210	-.105
.318	-.043	-.041	-.249	-.212	-.169	-.081
.328	-.033	-.040	-.190	-.188	-.150	-.073
.338	-.024	-.034	-.085	-.164	-.129	-.063
.348	-.017	-.027	-.047	-.141	-.110	-.053
.359	-.012	-.023	.011	-.125	-.097	-.047
.369	-.011	-.023	.015	-.111	-.086	-.043
.379	-.005	-.017	.023	-.093	-.074	-.035
.400	-.004	-.017	.010	-.074	-.060	-.029
.441	.001	-.012	.006	.009	-.042	-.018
.451	.002	-.012	.003	.011	-.040	-.018
.482	.016	.002	.012	.007	-.037	-.007
.647	.021	.008	.012	.027	.037	.019
.729	.015	.003	.015	.009	-.013	-.001
.812	.026	.017	.025	.037	.083	-.007
.863	.037	.032	.046	.056	.136	-.023
.904	.197	.213	.243	.278	.325	.239
.945	.021	.024	.045	.081	.135	.115
.987	-.063	-.062	-.028	.016	.069	.106

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=0^{\circ}$; $\alpha=0^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.170	1.219	1.245	1.277	1.295	1.402
.035	.210	.276	.341	.403	.440	.406
.045	.101	.172	.229	.297	.338	.459
.055	-.233	-.093	-.013	.069	.115	.287
.065	-.572	-.979	-.855	-.738	-.672	-.418
.076	-.219	-.729	-.657	-.557	-.495	-.303
.091	-.022	-.014	-.442	-.361	-.305	-.190
.101	-.008	.053	-.298	-.259	-.205	-.133
.112	-.002	.040	-.062	-.191	-.139	-.094
.132	.015	.029	.077	-.111	-.059	-.047
.153	.038	.043	.098	-.017	.012	-.030
.173	.093	.102	.154	.151	.187	-.027
.184	.177	.206	.249	.255	.290	.156
.194	.152	.166	.217	.239	.274	.238
.204	.090	.096	.139	.166	.198	.178
.215	.063	.065	.102	.132	.163	.152
.235	.029	.018	.058	.096	.126	.125
.256	-.014	-.019	.022	.071	.102	.111
.276	-.111	-.101	-.044	.020	.057	.099
.287	-.378	-.537	-.437	-.344	-.292	-.138
.297	-.133	-.339	-.423	-.336	-.287	-.153
.307	-.081	-.101	-.356	-.278	-.235	-.123
.318	-.054	-.063	-.291	-.227	-.190	-.097
.328	-.044	-.052	-.195	-.193	-.162	-.082
.338	-.033	-.044	-.081	-.159	-.134	-.068
.348	-.026	-.036	-.019	-.132	-.111	-.053
.359	-.021	-.038	-.006	-.111	-.096	-.045
.369	-.020	-.035	-.004	-.095	-.084	-.038
.379	-.015	-.034	-.003	-.076	-.072	-.028
.400	-.014	-.029	-.011	-.046	-.060	-.023
.441	-.008	-.026	-.018	.002	-.045	-.016
.451	-.008	-.023	-.021	-.001	-.045	-.013
.482	.004	-.012	-.012	-.003	-.042	-.001
.647	.008	-.005	-.010	.019	.023	.012
.729	.005	-.014	-.011	.012	-.019	.002
.812	.021	.009	.010	.042	.089	-.006
.863	.035	.029	.038	.082	.143	-.025
.904	.142	.146	.168	.216	.259	.185
.945	.000	-.001	.013	.068	.119	.094
.987	-.086	-.097	-.080	-.022	.025	.092

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=0^{\circ}$; $\alpha=4^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.169	1.214	1.244	1.270	1.291	1.397
.035	.096	.064	.071	.124	.172	.097
.045	.026	.102	.165	.231	.276	.401
.055	-.300	-.157	-.075	.005	.056	.213
.065	-.563	-1.025	-.897	-.778	-.708	-.445
.076	-.311	-.415	-.731	-.627	-.561	-.355
.091	-.051	-.104	-.427	-.399	-.340	-.235
.101	-.006	.031	-.091	-.250	-.196	-.156
.112	.005	.050	.031	-.163	-.111	-.103
.132	.018	.033	.097	-.087	-.039	-.045
.153	.039	.045	.107	.026	.047	-.029
.173	.084	.098	.153	.149	.182	-.003
.184	.144	.169	.215	.235	.247	.150
.194	.119	.138	.188	.207	.240	.201
.204	.063	.069	.115	.143	.173	.150
.215	.035	.036	.077	.109	.136	.123
.235	-.003	-.006	.031	.068	.094	.087
.256	-.046	-.051	-.009	.040	.068	.071
.276	-.131	-.149	-.089	-.028	.008	.054
.287	-.324	-.578	-.474	-.378	-.328	-.186
.297	-.129	-.199	-.417	-.328	-.283	-.164
.307	-.082	-.094	-.356	-.283	-.244	-.137
.318	-.055	-.064	-.209	-.235	-.203	-.111
.328	-.045	-.054	-.064	-.193	-.169	-.095
.338	-.034	-.045	-.013	-.152	-.136	-.077
.348	-.027	-.038	.003	-.119	-.110	-.062
.359	-.021	-.035	.005	-.096	-.092	-.053
.369	-.019	-.033	.002	-.078	-.080	-.046
.379	-.013	-.028	.001	-.061	-.068	-.040
.400	-.012	-.027	-.005	-.034	-.057	-.031
.441	-.007	-.022	-.008	-.005	-.048	-.016
.451	-.007	-.021	-.009	-.005	-.049	-.012
.482	.004	-.011	-.001	.004	-.043	-.010
.647	.008	-.007	.001	.018	.018	-.001
.729	.006	-.009	.001	.011	-.025	-.005
.812	.020	.010	.021	.045	.092	-.011
.863	.031	.028	.046	.082	.138	-.028
.904	.117	.126	.157	.197	.239	.172
.945	-.022	-.026	-.005	.043	.091	.081
.987	-.109	-.126	-.109	-.065	-.019	.048

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=0^{\circ}$; $\alpha=8^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.144	1.193	1.222	1.248	1.271	1.379
.035	-.152	-.185	-.151	-.089	-.035	-.055
.045	-.034	.048	.107	.171	.219	.308
.055	-.363	-.223	-.144	-.066	-.012	.143
.065	-.528	-.622	-.913	-.794	-.722	-.443
.076	-.298	-.500	-.793	-.689	-.619	-.393
.091	-.062	-.277	-.324	-.403	-.344	-.255
.101	-.006	-.092	-.095	-.216	-.161	-.147
.112	.012	.011	.006	-.137	-.083	-.084
.132	.027	.053	.098	-.069	-.020	-.031
.153	.044	.057	.113	.035	.067	-.013
.173	.078	.090	.144	.133	.172	.018
.184	.127	.141	.199	.198	.235	.157
.194	.102	.117	.174	.192	.229	.197
.204	.047	.053	.100	.129	.162	.143
.215	.019	.019	.060	.093	.125	.116
.235	-.021	-.025	.009	.049	.080	.078
.256	-.061	-.072	-.032	.018	.049	.063
.276	-.136	-.173	-.108	-.046	-.007	.045
.287	-.313	-.583	-.489	-.396	-.343	-.182
.297	-.125	-.172	-.421	-.338	-.289	-.214
.307	-.077	-.094	-.379	-.301	-.257	-.139
.318	-.050	-.063	-.217	-.249	-.214	-.117
.328	-.038	-.052	-.066	-.192	-.169	-.104
.338	-.028	-.042	-.016	-.145	-.128	-.081
.348	-.020	-.034	.002	-.110	-.101	-.061
.359	-.015	-.030	.005	-.091	-.083	-.051
.369	-.014	-.028	.002	-.074	-.073	-.041
.379	-.008	-.022	.002	-.059	-.062	-.029
.400	-.007	-.023	-.008	-.037	-.057	-.017
.441	-.003	-.018	-.013	-.011	-.049	-.015
.451	-.003	-.019	-.013	-.012	-.049	-.015
.482	.009	-.007	-.003	-.005	-.028	-.005
.647	.011	-.005	.007	.025	.024	.007
.729	.005	-.011	-.006	.007	-.027	.005
.812	.017	.004	.014	.040	.090	-.014
.863	.021	.014	.030	.068	.126	.001
.904	.139	.145	.189	.235	.284	.269
.945	-.044	-.056	-.032	.016	.068	.060
.987	-.128	-.150	-.132	-.079	-.028	.063

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=30^{\circ}$; $\alpha=-8^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.134	1.186	1.215	1.244	1.265	1.368
.035	.343	.404	.450	.503	.537	.614
.045	.233	.309	.358	.417	.453	.557
.055	-.121	.019	.093	.166	.208	.370
.065	-.268	-.829	-.726	-.621	-.560	-.343
.076	-.065	-.412	-.461	-.379	-.324	-.189
.091	-.029	.028	-.312	-.250	-.198	-.108
.101	-.011	.018	-.267	-.214	-.163	-.083
.112	.001	.018	.000	-.194	-.144	-.074
.132	.027	.034	.087	-.162	-.111	-.063
.153	.050	.058	.097	-.095	-.049	-.060
.173	.109	.122	.156	.152	.180	-.046
.184	.229	.257	.295	.308	.338	.034
.194	.206	.230	.267	.291	.322	.263
.204	.148	.165	.196	.220	.249	.217
.215	.124	.139	.165	.192	.219	.202
.235	.090	.102	.127	.159	.187	.177
.256	.050	.064	.092	.134	.160	.167
.276	-.045	-.016	.029	.088	.120	.153
.287	-.412	-.475	-.385	-.296	-.247	-.086
.297	-.109	-.214	-.366	-.292	-.249	-.123
.307	-.060	-.057	-.275	-.218	-.183	-.091
.318	-.034	-.036	-.220	-.174	-.144	-.068
.328	-.027	-.031	-.144	-.159	-.134	-.064
.338	-.018	-.022	-.014	-.145	-.121	-.054
.348	-.010	-.015	.009	-.129	-.112	-.049
.359	-.007	-.011	.011	-.116	-.103	-.048
.369	-.004	-.010	.007	-.103	-.095	-.048
.379	.001	-.003	.010	-.083	-.082	-.040
.400	.001	-.003	.003	-.053	-.070	-.038
.441	.007	.001	.002	.007	-.047	-.023
.451	.008	.004	.003	.005	-.043	-.017
.482	.023	.018	.016	.003	-.035	-.010
.647	.029	.024	.021	.034	.042	.017
.729	.019	.015	.015	.019	-.015	.001
.812	.034	.032	.031	.046	.090	-.006
.863	.040	.039	.042	.067	.127	-.023
.904	.215	.238	.260	.300	.343	.257
.945	.033	.043	.058	.097	.144	.122
.987	-.056	-.044	-.018	.034	.080	.096

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=30^{\circ}$; $\alpha=-4^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.164	1.213	1.241	1.270	1.288	1.392
.035	.275	.336	.383	.439	.474	.587
.045	.166	.242	.295	.355	.393	.506
.055	-.182	-.036	.041	.115	.159	.329
.065	-.436	-.910	-.798	-.688	-.626	-.389
.076	-.070	-.592	-.565	-.478	-.422	-.254
.091	-.025	.054	-.377	-.312	-.260	-.154
.101	-.010	.049	-.238	-.245	-.195	-.114
.112	.002	.036	.044	-.203	-.152	-.092
.132	.024	.038	.095	-.135	-.086	-.066
.153	.047	.055	.099	-.055	-.025	-.050
.173	.106	.119	.156	.151	.179	-.042
.184	.211	.240	.279	.287	.316	.103
.194	.183	.205	.245	.267	.296	.254
.204	.122	.136	.167	.192	.218	.195
.215	.096	.107	.134	.161	.186	.172
.235	.061	.069	.095	.128	.151	.148
.256	.020	.031	.059	.103	.126	.132
.276	-.077	-.050	-.001	.058	.089	.123
.287	-.406	-.498	-.404	-.314	-.267	-.111
.297	-.118	-.226	-.402	-.321	-.279	-.141
.307	-.067	-.054	-.322	-.255	-.222	-.113
.318	-.040	-.036	-.253	-.209	-.180	-.088
.328	-.032	-.032	-.070	-.182	-.159	-.082
.338	-.022	-.025	.003	-.154	-.136	-.071
.348	-.015	-.018	.015	-.129	-.117	-.060
.359	-.010	-.015	.013	-.112	-.105	-.053
.369	-.008	-.013	.007	-.094	-.094	-.048
.379	-.001	-.007	.008	-.074	-.081	-.040
.400	-.001	-.006	.000	-.043	-.068	-.034
.441	.003	-.002	.000	.003	-.049	-.021
.451	.004	-.001	.000	-.001	-.047	-.021
.482	.018	.013	.011	-.002	-.043	-.013
.647	.025	.018	.016	.026	.030	.014
.729	.018	.012	.012	.016	-.019	-.002
.812	.033	.029	.030	.044	.085	-.009
.863	.041	.041	.045	.070	.130	-.024
.904	.195	.212	.233	.273	.313	.231
.945	.022	.028	.040	.079	.124	.109
.987	-.061	-.055	-.038	.015	.058	.116

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=30^\circ$; $\alpha=0^\circ$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.172	1.220	1.246	1.277	1.295	1.397
.035	.204	.285	.332	.399	.433	.384
.045	.096	.180	.229	.294	.334	.450
.055	-.238	-.086	-.013	.065	.111	.277
.065	-.578	-.971	-.857	-.742	-.677	-.430
.076	-.223	-.547	-.656	-.560	-.499	-.315
.091	-.018	.037	-.432	-.363	-.309	-.202
.101	-.005	.065	-.123	-.259	-.209	-.143
.112	.002	.045	.048	-.191	-.141	-.104
.132	.019	.040	.098	-.110	-.061	-.057
.153	.042	.057	.102	-.006	.013	-.041
.173	.096	.117	.155	.152	.183	-.039
.184	.177	.216	.250	.255	.287	.145
.194	.150	.180	.215	.238	.269	.227
.204	.091	.109	.140	.166	.195	.168
.215	.063	.077	.104	.133	.160	.143
.235	.024	.038	.061	.095	.121	.115
.256	-.014	-.002	.025	.071	.098	.101
.276	-.109	-.091	-.042	.020	.052	.090
.287	-.369	-.530	-.438	-.346	-.297	-.150
.297	-.127	-.163	-.423	-.337	-.293	-.164
.307	-.076	-.064	-.350	-.278	-.240	-.134
.318	-.049	-.042	-.235	-.225	-.195	-.107
.328	-.040	-.036	-.050	-.190	-.166	-.094
.338	-.029	-.027	-.001	-.156	-.138	-.079
.348	-.021	-.020	.009	-.126	-.115	-.065
.359	-.016	-.016	.007	-.105	-.100	-.056
.369	-.015	-.014	.002	-.087	-.088	-.048
.379	-.010	-.009	.002	-.068	-.077	-.038
.400	-.008	-.008	-.005	-.033	-.064	-.032
.441	-.004	-.003	-.005	-.003	-.049	-.027
.451	-.004	-.003	-.007	-.007	-.049	-.024
.482	.009	.009	.003	-.002	-.045	-.011
.647	.014	.013	.007	.019	.020	.003
.729	.010	.011	.005	.012	-.024	-.010
.812	.026	.029	.027	.044	.081	-.013
.863	.039	.048	.051	.083	.141	-.031
.904	.143	.159	.175	.213	.254	.172
.945	.004	.016	.024	.068	.116	.087
.987	-.081	-.075	-.071	-.025	.019	.080

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=30^\circ$; $\alpha=4^\circ$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.164	1.211	1.239	1.268	1.286	1.393
.035	.131	.124	.126	.172	.213	.105
.045	.032	.114	.171	.237	.278	.403
.055	-.289	-.142	-.063	.017	.062	.227
.065	-.564	-1.018	-.899	-.779	-.716	-.459
.076	-.303	-.379	-.719	-.616	-.556	-.352
.091	-.042	-.048	-.399	-.397	-.344	-.235
.101	-.002	.059	-.054	-.255	-.204	-.160
.112	.008	.057	.053	-.168	-.119	-.111
.132	.022	.043	.103	-.090	-.044	-.052
.153	.043	.056	.107	.023	.046	-.035
.173	.088	.110	.155	.152	.182	-.014
.184	.152	.187	.224	.223	.254	.151
.194	.124	.150	.191	.211	.240	.201
.204	.068	.082	.118	.144	.172	.148
.215	.040	.050	.081	.110	.136	.122
.235	.002	.007	.035	.072	.095	.089
.256	-.040	-.037	-.003	.043	.068	.071
.276	-.127	-.134	-.081	-.022	.010	.056
.287	-.329	-.561	-.469	-.374	-.327	-.184
.297	-.127	-.157	-.423	-.334	-.294	-.173
.307	-.077	-.079	-.349	-.285	-.249	-.143
.318	-.051	-.052	-.161	-.233	-.205	-.115
.328	-.040	-.042	-.036	-.192	-.172	-.098
.338	-.031	-.033	-.001	-.154	-.141	-.082
.348	-.022	-.026	.009	-.121	-.115	-.066
.359	-.018	-.022	.007	-.097	-.098	-.057
.369	-.016	-.019	.003	-.077	-.087	-.050
.379	-.010	-.015	.003	-.059	-.073	-.044
.400	-.009	-.012	-.003	-.028	-.062	-.036
.441	-.004	-.009	-.004	-.005	-.053	-.021
.451	-.003	-.007	-.004	-.008	-.052	-.018
.482	.006	.001	.003	-.003	-.050	-.016
.647	.009	.004	.005	.015	.011	-.006
.729	.008	.004	.005	.012	-.029	-.014
.812	.022	.022	.027	.045	.074	-.015
.863	.038	.043	.055	.086	.140	-.025
.904	.106	.116	.136	.170	.208	.127
.945	-.011	-.006	.009	.052	.097	.084
.987	-.097	-.104	-.097	-.059	-.019	.044

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

ϕ=30°; α=8°						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.133	1.183	1.212	1.243	1.263	1.369
.035	-.057	-.147	-.131	-.072	-.026	-.063
.045	-.033	.054	.115	.184	.226	.340
.055	-.338	-.188	-.107	-.026	.021	.195
.065	-.543	-.700	-.944	-.826	-.758	-.501
.076	-.327	-.440	-.767	-.663	-.599	-.379
.091	-.070	-.199	-.255	-.412	-.358	-.256
.101	-.012	-.049	-.076	-.237	-.188	-.170
.112	.005	.023	.022	-.152	-.104	-.110
.132	.019	.048	.092	-.077	-.037	-.051
.153	.036	.054	.095	.033	.051	-.035
.173	.073	.092	.132	.133	.160	.005
.184	.126	.149	.178	.178	.207	.126
.194	.094	.114	.150	.171	.199	.163
.204	.037	.050	.079	.112	.137	.115
.215	.009	.018	.042	.079	.101	.090
.235	-.029	-.026	-.003	.039	.061	.056
.256	-.070	-.071	-.043	.011	.033	.041
.276	-.155	-.172	-.126	-.059	-.029	.022
.287	-.306	-.528	-.484	-.385	-.337	-.200
.297	-.133	-.162	-.450	-.360	-.318	-.182
.307	-.084	-.085	-.349	-.308	-.273	-.166
.318	-.058	-.057	-.151	-.242	-.219	-.134
.328	-.046	-.047	-.047	-.189	-.177	-.115
.338	-.036	-.037	-.013	-.144	-.140	-.095
.348	-.029	-.030	-.003	-.110	-.113	-.078
.359	-.025	-.027	-.002	-.085	-.096	-.066
.369	-.022	-.025	-.006	-.068	-.085	-.057
.379	-.018	-.021	-.008	-.051	-.075	-.047
.400	-.016	-.019	-.014	-.031	-.067	-.035
.441	-.014	-.016	-.019	-.021	-.063	-.032
.451	-.014	-.017	-.020	-.022	-.063	-.032
.482	-.005	-.009	-.013	-.008	-.050	-.023
.647	-.004	-.007	-.011	.004	-.005	-.018
.729	-.004	-.007	-.010	.002	-.043	-.023
.812	.010	.012	.011	.036	.076	-.028
.863	.022	.029	.036	.073	.123	-.026
.904	.097	.115	.129	.173	.215	.147
.945	-.043	-.037	-.032	.015	.056	.036
.987	-.130	-.133	-.131	-.080	-.038	.021

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=60^{\circ}$; $\alpha=-8^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.146	1.196	1.224	1.253	1.273	1.380
.035	.264	.321	.364	.419	.448	.529
.045	.153	.232	.281	.342	.374	.486
.055	-.185	-.036	.037	.113	.154	.320
.065	-.389	-.894	-.787	-.677	-.621	-.386
.076	-.117	-.491	-.537	-.451	-.407	-.244
.091	-.071	-.013	-.382	-.316	-.279	-.160
.101	-.052	-.022	-.322	-.277	-.241	-.134
.112	-.038	-.021	.004	-.256	-.222	-.127
.132	-.014	-.002	.053	-.194	-.172	-.107
.153	.010	.021	.061	-.113	-.112	-.097
.173	.066	.084	.119	.119	.137	-.075
.184	.176	.210	.246	.261	.285	.032
.194	.144	.174	.210	.233	.264	.231
.204	.084	.104	.135	.160	.192	.172
.215	.060	.077	.105	.134	.165	.150
.235	.027	.041	.067	.102	.133	.128
.256	-.013	.003	.031	.076	.110	.113
.276	-.106	-.076	-.029	.030	.068	.100
.287	-.461	-.522	-.429	-.338	-.288	-.127
.297	-.151	-.308	-.421	-.342	-.293	-.160
.307	-.103	-.087	-.337	-.275	-.231	-.134
.318	-.077	-.069	-.279	-.231	-.192	-.112
.328	-.070	-.067	-.131	-.215	-.180	-.109
.338	-.060	-.060	-.031	-.189	-.160	-.102
.348	-.054	-.054	-.024	-.168	-.143	-.094
.359	-.048	-.050	-.024	-.153	-.134	-.087
.369	-.048	-.049	-.030	-.138	-.128	-.084
.379	-.039	-.041	-.027	-.115	-.114	-.075
.400	-.041	-.041	-.035	-.083	-.108	-.071
.441	-.037	-.037	-.035	-.032	-.101	-.057
.451	-.035	-.035	-.034	-.033	-.100	-.049
.482	-.020	-.021	-.022	-.034	-.096	-.045
.647	-.014	-.013	-.014	-.002	-.080	-.027
.729	-.021	-.020	-.021	-.016	-.049	-.032
.812	-.006	-.003	-.003	.013	-.074	-.037
.863	-.003	.005	.010	.038	-.111	-.044
.904	.153	.184	.204	.247	.217	.233
.945	-.021	-.007	.007	.048	.065	.080
.987	-.097	-.085	-.064	-.009	.037	.106

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=60^\circ$; $\alpha=-4^\circ$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.167	1.218	1.244	1.274	1.293	1.396
.035	.232	.298	.347	.406	.438	.519
.045	.129	.211	.262	.324	.358	.478
.055	-.206	-.053	.020	.098	.141	.310
.065	-.505	-.935	-.825	-.711	-.650	-.405
.076	-.110	-.629	-.604	-.510	-.462	-.280
.091	-.037	.044	-.404	-.336	-.297	-.175
.101	-.022	.044	-.216	-.263	-.228	-.132
.112	-.011	.028	.037	-.215	-.184	-.107
.132	.012	.028	.085	-.136	-.117	-.076
.153	.034	.045	.090	-.049	-.074	-.057
.173	.092	.108	.146	.143	.165	-.040
.184	.190	.224	.261	.269	.295	.114
.194	.157	.185	.222	.244	.280	.239
.204	.097	.115	.146	.171	.210	.179
.215	.070	.085	.112	.140	.180	.154
.235	.034	.048	.070	.106	.148	.130
.256	-.006	.009	.036	.082	.123	.115
.276	-.103	-.072	-.025	.036	.079	.104
.287	-.415	-.514	-.422	-.331	-.276	-.126
.297	-.133	-.258	-.425	-.341	-.286	-.158
.307	-.083	-.060	-.347	-.277	-.228	-.128
.318	-.056	-.045	-.267	-.228	-.182	-.104
.328	-.048	-.043	-.067	-.196	-.154	-.095
.338	-.036	-.036	-.006	-.165	-.128	-.082
.348	-.030	-.029	.004	-.139	-.110	-.069
.359	-.024	-.025	.001	-.122	-.098	-.062
.369	-.024	-.024	-.004	-.105	-.090	-.056
.379	-.018	-.018	-.003	-.085	-.081	-.049
.400	-.017	-.018	-.011	-.052	-.075	-.043
.441	-.012	-.013	-.013	-.006	-.072	-.029
.451	-.011	-.011	-.013	-.009	-.073	-.028
.482	.002	.002	-.002	-.010	-.073	-.022
.647	.008	.007	.004	.017	-.057	-.001
.729	.002	.003	.000	.006	-.026	-.015
.812	.018	.020	.020	.037	-.049	-.015
.863	.026	.032	.037	.066	-.088	-.029
.904	.166	.187	.206	.249	.213	.222
.945	.000	.012	.024	.066	.091	.096
.987	-.074	-.065	-.050	.005	.052	.115

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=60^{\circ}$; $\alpha=0^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.172	1.221	1.247	1.277	1.294	1.399
.035	.200	.284	.342	.398	.428	.389
.045	.090	.176	.232	.292	.329	.453
.055	-.241	-.086	-.008	.068	.111	.282
.065	-.583	-.970	-.852	-.741	-.679	-.425
.076	-.239	-.602	-.652	-.559	-.508	-.312
.091	-.019	.033	-.426	-.363	-.323	-.197
.101	-.004	.066	-.114	-.259	-.226	-.139
.112	.002	.047	.053	-.190	-.163	-.100
.132	.017	.039	.103	-.109	-.092	-.053
.153	.040	.055	.106	-.007	-.051	-.039
.173	.094	.115	.159	.152	.173	-.030
.184	.176	.216	.255	.255	.282	.145
.194	.146	.178	.219	.237	.272	.229
.204	.090	.109	.143	.166	.206	.173
.215	.062	.077	.108	.133	.174	.147
.235	.025	.038	.065	.097	.138	.118
.256	-.016	-.004	.029	.070	.113	.104
.276	-.111	-.091	-.038	.020	.063	.094
.287	-.368	-.530	-.432	-.346	-.291	-.144
.297	-.129	-.179	-.421	-.338	-.285	-.160
.307	-.077	-.065	-.346	-.277	-.228	-.131
.318	-.051	-.044	-.228	-.226	-.181	-.104
.328	-.042	-.038	-.044	-.191	-.152	-.091
.338	-.031	-.030	.004	-.157	-.125	-.076
.348	-.023	-.021	.015	-.128	-.102	-.062
.359	-.018	-.018	.012	-.107	-.088	-.055
.369	-.016	-.016	.008	-.088	-.080	-.046
.379	-.012	-.011	.007	-.069	-.072	-.036
.400	-.010	-.010	.001	-.035	-.067	-.028
.441	-.005	-.005	-.001	-.002	-.065	-.024
.451	-.005	-.005	-.002	-.005	-.066	-.022
.482	.008	.007	.008	-.003	-.066	-.011
.647	.012	.011	.012	.020	-.034	.006
.729	.008	.009	.009	.013	-.018	-.010
.812	.025	.027	.031	.044	-.043	-.008
.863	.038	.047	.056	.083	-.070	-.028
.904	.141	.156	.179	.213	.173	.174
.945	.005	.017	.031	.071	.099	.094
.987	-.073	-.069	-.057	-.016	.028	.094

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Continued

$\phi=60^{\circ}$; $\alpha=4^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.158	1.207	1.234	1.265	1.284	1.389
.035	.158	.240	.275	.330	.351	.241
.045	.047	.133	.185	.252	.285	.412
.055	-.272	-.114	-.040	.042	.081	.254
.065	-.580	-1.003	-.887	-.768	-.709	-.450
.076	-.305	-.433	-.697	-.596	-.547	-.344
.091	-.038	.008	-.443	-.386	-.350	-.220
.101	-.009	.054	-.072	-.272	-.245	-.159
.112	.000	.041	.050	-.191	-.171	-.118
.132	.014	.035	.094	-.105	-.093	-.063
.153	.037	.052	.097	.003	-.042	-.045
.173	.085	.109	.148	.148	.166	-.029
.184	.162	.201	.233	.234	.255	.150
.194	.127	.158	.193	.214	.243	.209
.204	.068	.087	.118	.144	.179	.152
.215	.041	.055	.082	.111	.146	.126
.235	.002	.014	.038	.075	.109	.097
.256	-.039	-.027	.002	.048	.084	.080
.276	-.131	-.115	-.068	-.006	.032	.068
.287	-.373	-.547	-.457	-.365	-.316	-.167
.297	-.136	-.162	-.450	-.354	-.313	-.178
.307	-.084	-.068	-.365	-.293	-.250	-.149
.318	-.057	-.048	-.194	-.236	-.197	-.120
.328	-.048	-.043	-.038	-.197	-.164	-.103
.338	-.037	-.034	-.003	-.162	-.135	-.083
.348	-.028	-.026	.004	-.132	-.111	-.068
.359	-.026	-.024	.001	-.110	-.099	-.060
.369	-.023	-.021	-.003	-.092	-.089	-.053
.379	-.019	-.017	-.005	-.071	-.081	-.046
.400	-.015	-.015	-.009	-.040	-.074	-.040
.441	-.011	-.010	-.011	-.008	-.074	-.027
.451	-.010	-.009	-.010	-.011	-.077	-.024
.482	.000	.001	-.001	-.008	-.075	-.015
.647	.005	.006	.003	.014	-.046	-.004
.729	.003	.006	.003	.009	-.030	-.014
.812	.021	.025	.025	.043	-.053	-.010
.863	.034	.045	.053	.084	-.057	-.028
.904	.117	.133	.148	.183	.137	.145
.945	-.012	.000	.011	.054	.073	.092
.987	-.095	-.090	-.083	-.038	-.001	.068

L-1607

L-1607

TABLE IV.- PRESSURE COEFFICIENTS FOR BODY ALONE - Concluded

ϕ=60°; α=8°						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.024	1.122	1.173	1.203	1.233	1.252	1.360
.035	.049	.149	.204	.258	.289	.171
.045	-.019	.064	.119	.183	.219	.331
.055	-.318	-.164	-.087	-.009	.032	.197
.065	-.589	-.747	-.919	-.804	-.742	-.483
.076	-.345	-.468	-.740	-.642	-.590	-.387
.091	-.070	-.159	-.413	-.424	-.384	-.254
.101	-.041	-.053	-.086	-.324	-.294	-.202
.112	-.030	-.014	.013	-.228	-.209	-.166
.132	-.008	.015	.066	-.125	-.114	-.096
.153	.014	.035	.079	.004	-.037	-.069
.173	.062	.088	.130	.128	.144	-.027
.184	.134	.164	.198	.185	.201	.130
.194	.088	.116	.150	.168	.194	.166
.204	.026	.046	.079	.105	.135	.112
.215	-.002	.016	.044	.074	.104	.089
.235	-.040	-.025	-.002	.035	.065	.057
.256	-.081	-.069	-.041	.007	.036	.041
.276	-.171	-.157	-.109	-.048	-.013	.029
.287	-.428	-.581	-.490	-.401	-.350	-.196
.297	-.158	-.176	-.504	-.410	-.371	-.220
.307	-.106	-.081	-.387	-.324	-.287	-.179
.318	-.080	-.070	-.186	-.259	-.227	-.151
.328	-.070	-.065	-.053	-.218	-.193	-.136
.338	-.061	-.057	-.023	-.182	-.164	-.119
.348	-.052	-.049	-.017	-.150	-.140	-.105
.359	-.047	-.045	-.021	-.126	-.125	-.094
.369	-.045	-.042	-.025	-.105	-.114	-.083
.379	-.041	-.037	-.025	-.085	-.104	-.072
.400	-.037	-.034	-.027	-.055	-.095	-.060
.441	-.030	-.027	-.026	-.031	-.093	-.044
.451	-.029	-.026	-.026	-.033	-.093	-.042
.482	-.017	-.016	-.016	-.026	-.089	-.032
.647	-.010	-.009	-.010	-.002	-.061	-.021
.729	-.010	-.009	-.009	-.004	-.049	-.028
.812	.007	.010	.014	.030	-.068	-.029
.863	.020	.032	.042	.073	-.057	-.033
.904	.091	.112	.128	.163	.118	.130
.945	-.041	-.029	-.014	.030	.051	.069
.987	-.126	-.124	-.110	-.060	-.019	.056

TABLE V.- SECTION NORMAL-FORCE COEFFICIENTS FOR

BODY ALONE

$\alpha=4^{\circ}$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.035	.1340	.1760	.2125	.2152	.2163	.4298
.045	.1235	.1191	.1177	.1031	.1075	.0963
.055	.0995	.0982	.0987	.0896	.0908	.0932
.065	.1158	.1008	.0947	.0820	.0828	.0617
.076	.2331	−.2180	.1444	.1276	.1256	.0924
.091	.0130	.0886	.0401	.0761	.0775	.0722
.101	−.0102	−.0040	−.1823	.0088	.0133	.0413
.112	−.0086	−.0178	−.0467	−.0340	−.0268	.0163
.132	.0007	−.0054	−.0115	−.0441	−.0374	−.0149
.153	.0018	−.0029	−.0060	−.0777	−.0584	−.0149
.173	.0149	.0065	.0048	−.0040	−.0009	−.0242
.184	.0519	.0474	.0526	.0570	.0607	−.0460
.194	.0521	.0496	.0533	.0494	.0544	.0482
.204	.0487	.0492	.0489	.0420	.0449	.0427
.215	.0498	.0517	.0518	.0414	.0487	.0457
.235	.0529	.0563	.0578	.0491	.0552	.0543
.256	.0544	.0619	.0600	.0532	.0565	.0560
.276	.0455	.0757	.0755	.0703	.0735	.0607
.287	−.0694	.0590	.0621	.0536	.0578	.0663
.297	.0073	−.1111	.0281	.0123	.0210	.0289
.307	.0077	.0211	.0310	.0249	.0283	.0285
.318	.0077	.0132	−.0766	.0184	.0244	.0247
.328	.0060	.0073	−.0569	.0055	.0140	.0150
.338	.0064	.0050	−.0177	−.0012	.0066	.0082
.348	.0043	.0046	−.0103	−.0176	−.0004	.0041
.359	.0062	.0053	.0038	−.0182	−.0036	.0021
.369	.0047	.0035	.0044	−.0204	−.0047	.0002
.379	.0059	.0053	.0082	−.0197	−.0046	.0016
.400	.0043	.0035	.0041	−.0209	−.0034	.0000
.441	.0044	.0040	.0042	.0075	.0040	−.0013
.451	.0046	.0037	.0034	.0077	.0060	−.0044
.482	.0085	.0084	.0058	.0003	.0051	−.0011
.647	.0108	.0096	.0074	.0077	.0076	.0141
.729	.0057	.0049	.0049	−.0001	.0086	.0052
.812	.0045	.0024	.0001	−.0050	.0037	.0012
.863	−.0008	−.0053	−.0106	−.0178	−.0175	.0012
.904	.0753	.0818	.0836	.0880	.0943	.0898
.945	.0286	.0307	.0300	.0250	.0292	.0199
.987	.0343	.0456	.0570	.0672	.0743	.0623

L-1607

L-1607

TABLE V.- SECTION NORMAL-FORCE COEFFICIENTS FOR

BODY ALONE - Concluded

$\alpha = 8^\circ$						
x/l	M=0.800	M=0.900	M=0.950	M=1.000	M=1.030	M=1.200
.035	.3726	.4350	.4441	.4410	.4300	.5877
.045	.2472	.2397	.2306	.2246	.2173	.2187
.055	.2027	.1974	.1919	.1872	.1824	.1805
.065	.2602	−.1603	.1913	.1808	.1729	.1317
.076	.2577	.0032	.2915	.2731	.2622	.1904
.091	.0259	.2253	−.0027	.1519	.1479	.1396
.101	−.0036	.0702	−.2138	.0356	.0376	.0845
.112	−.0054	−.0009	−.0616	−.0366	−.0306	.0390
.132	.0020	−.0165	−.0100	−.0807	−.0716	−.0113
.153	.0070	−.0039	−.0080	−.1292	−.0966	−.0278
.173	.0259	.0192	.0113	.0113	.0100	−.0531
.184	.0866	.0933	.0938	.1148	.1168	−.1035
.194	.0975	.1017	.0992	.1042	.1059	.0882
.204	.0969	.1007	.0980	.0936	.0952	.0894
.215	.1013	.1059	.1047	.0993	.1009	.0973
.235	.1060	.1122	.1138	.1080	.1096	.1082
.256	.1073	.1200	.1185	.1113	.1143	.1123
.276	.0965	.1376	.1331	.1290	.1292	.1148
.287	−.0766	.0762	.0952	.0910	.0900	.1030
.297	.0187	−.1142	.0860	.0714	.0743	.0763
.307	.0173	.0174	.0806	.0821	.0829	.0659
.318	.0166	.0164	−.0633	.0621	.0668	.0601
.328	.0124	.0114	−.0997	.0264	.0369	.0474
.338	.0121	.0102	−.0268	.0020	.0162	.0359
.348	.0117	.0093	−.0041	−.0152	.0021	.0253
.359	.0114	.0095	.0067	−.0259	−.0073	.0168
.369	.0102	.0081	.0073	−.0310	−.0108	.0074
.379	.0129	.0104	.0116	−.0283	−.0075	.0039
.400	.0092	.0087	.0090	−.0229	−.0053	−.0054
.441	.0098	.0079	.0104	.0202	.0081	.0015
.451	.0107	.0104	.0111	.0204	.0107	.0077
.482	.0155	.0154	.0147	.0090	.0053	.0036
.647	.0175	.0181	.0151	.0186	.0190	.0189
.729	.0099	.0111	.0109	.0084	.0181	.0103
.812	.0098	.0095	.0055	.0016	.0026	.0119
.863	.0043	−.0001	−.0063	−.0121	−.0167	−.0042
.904	.0959	.1058	.1054	.1079	.1127	.0902
.945	.0611	.0680	.0701	.0662	.0652	.0612
.987	.0620	.0804	.0966	.1010	.1027	.0650

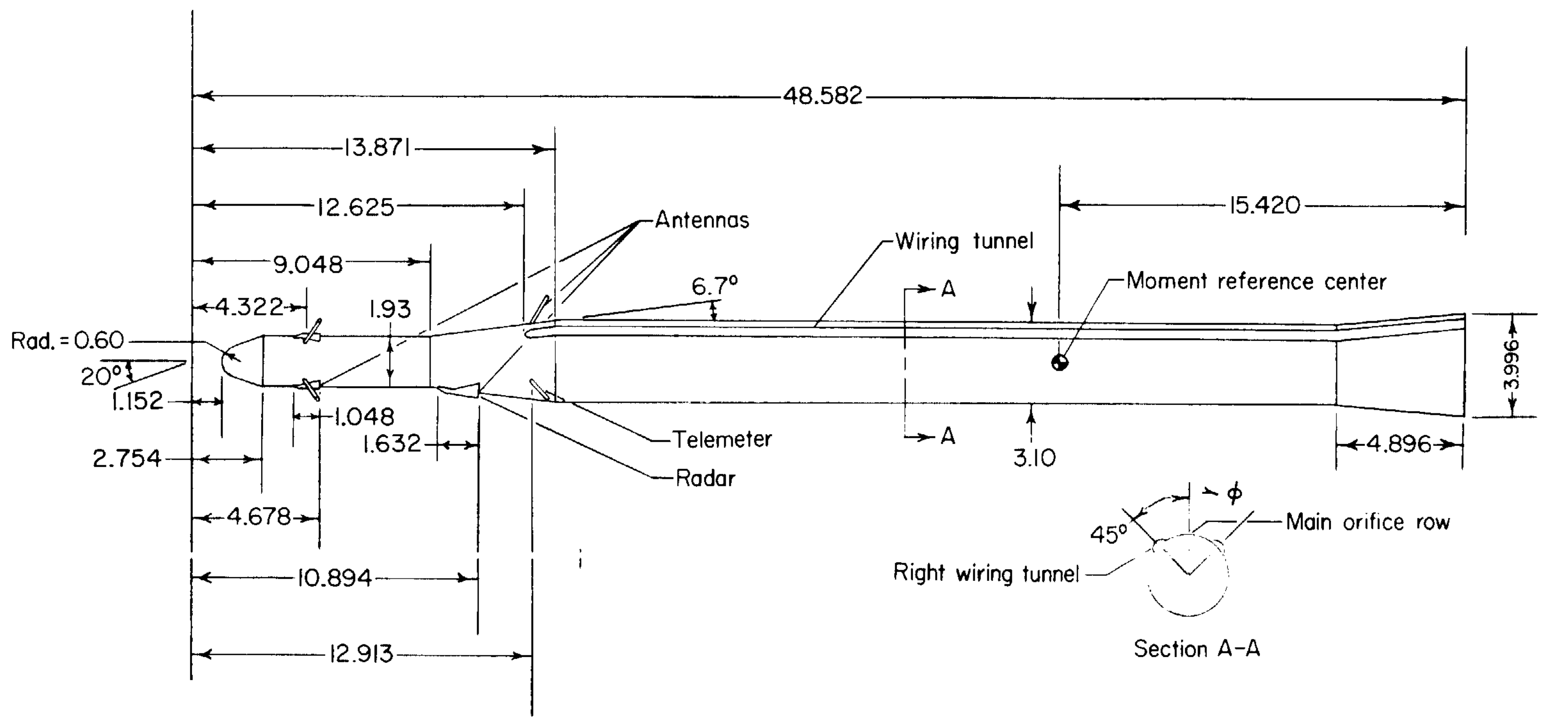
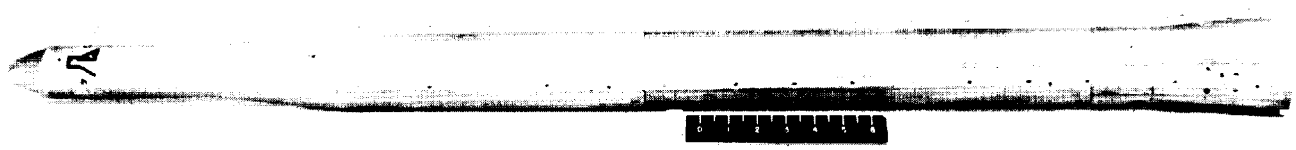


Figure 1.- Details of 1/10-scale three-stage NASA Scout model. All dimensions are in inches unless otherwise noted.



(a) Simulated Scout model. L-59-6355

Figure 2.- Model photographs.

L-59-6356

(b) Body alone.

Figure 2.- Concluded.

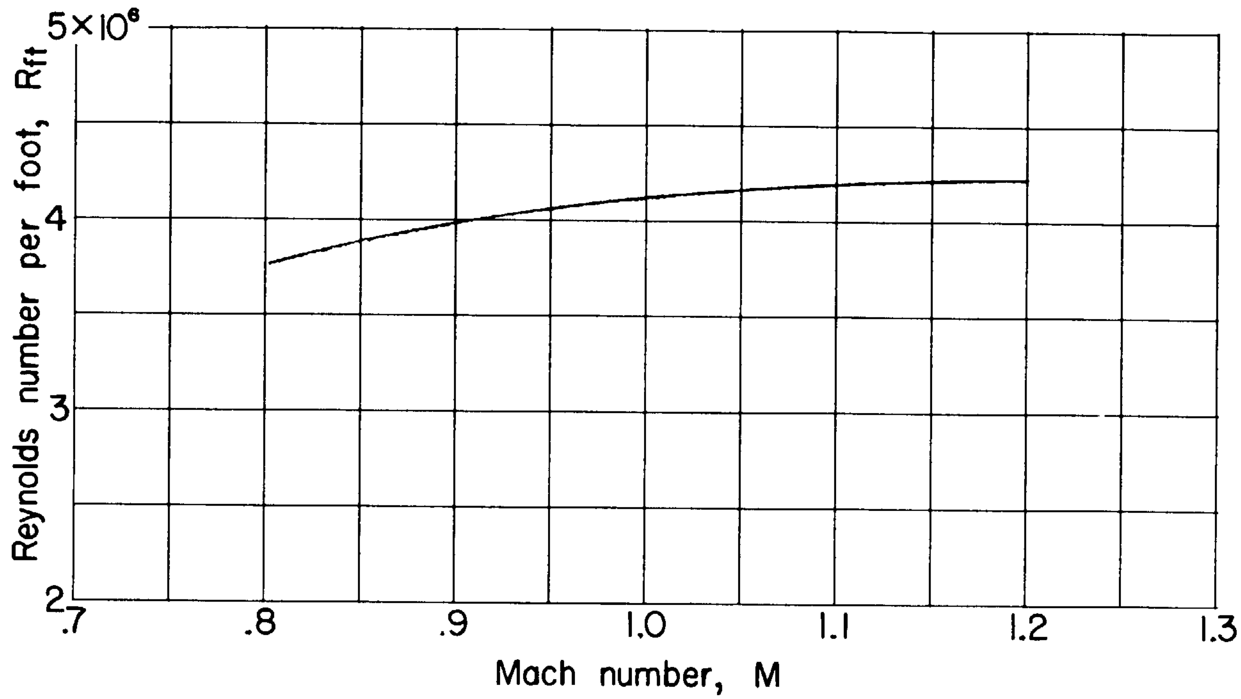
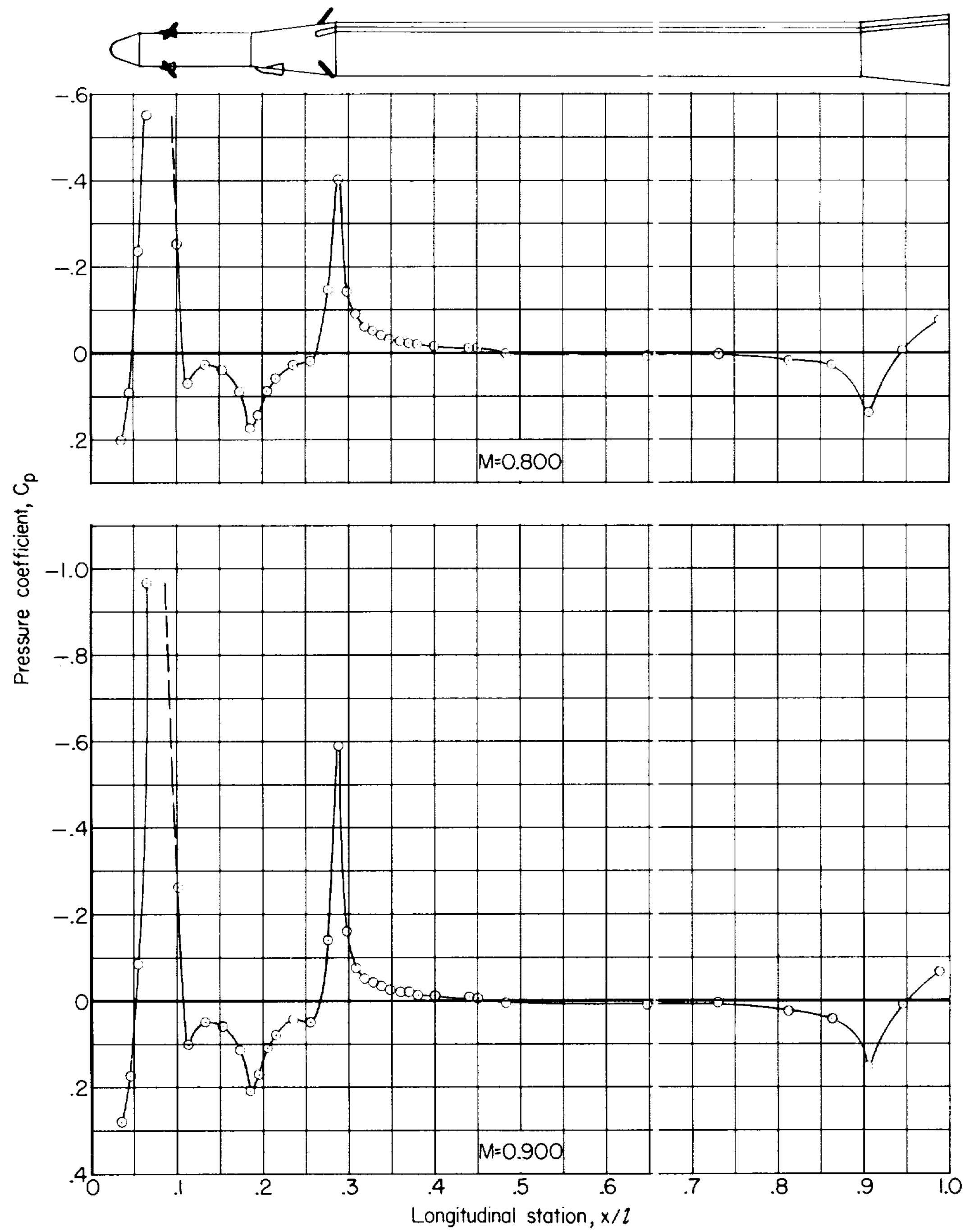


Figure 3.- Variation of test Reynolds number per foot with Mach number.

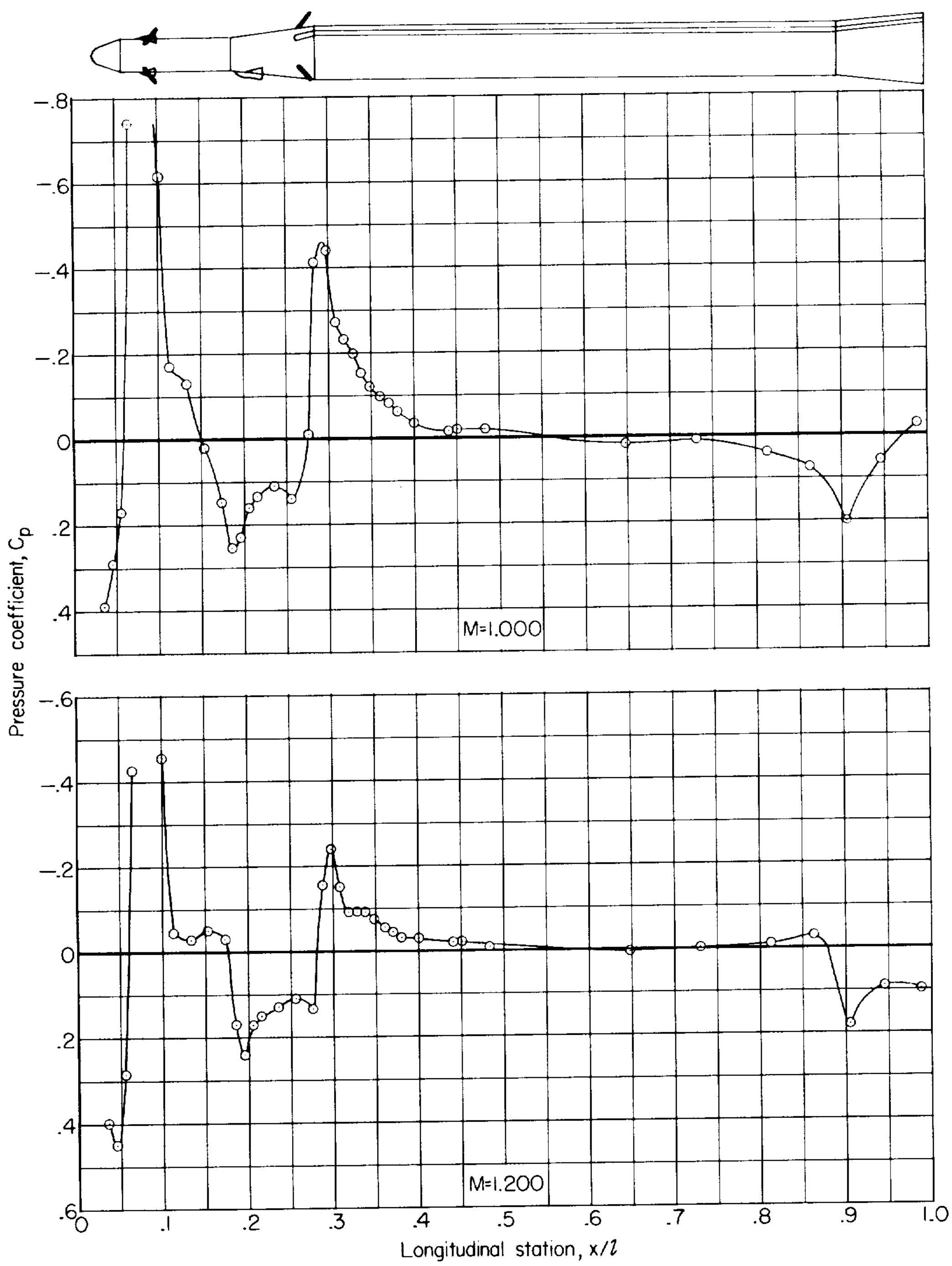


(a) $\phi = 0^{\circ}$.

Figure 4.- Pressure coefficients for simulated Scout model at $\alpha = 0^{\circ}$.

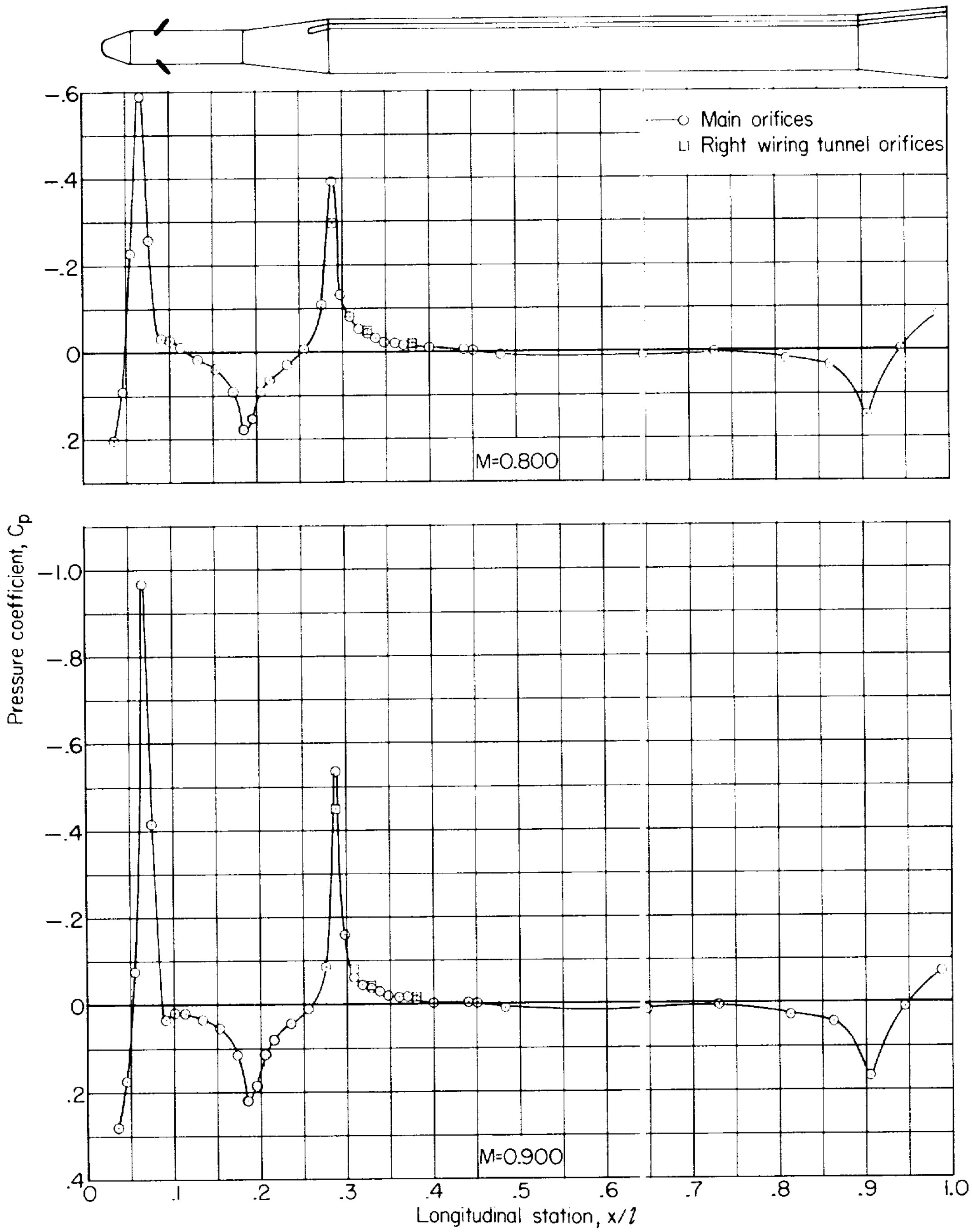
L-1607

L-1607



(a) $\phi = 0^{\circ}$. Concluded.

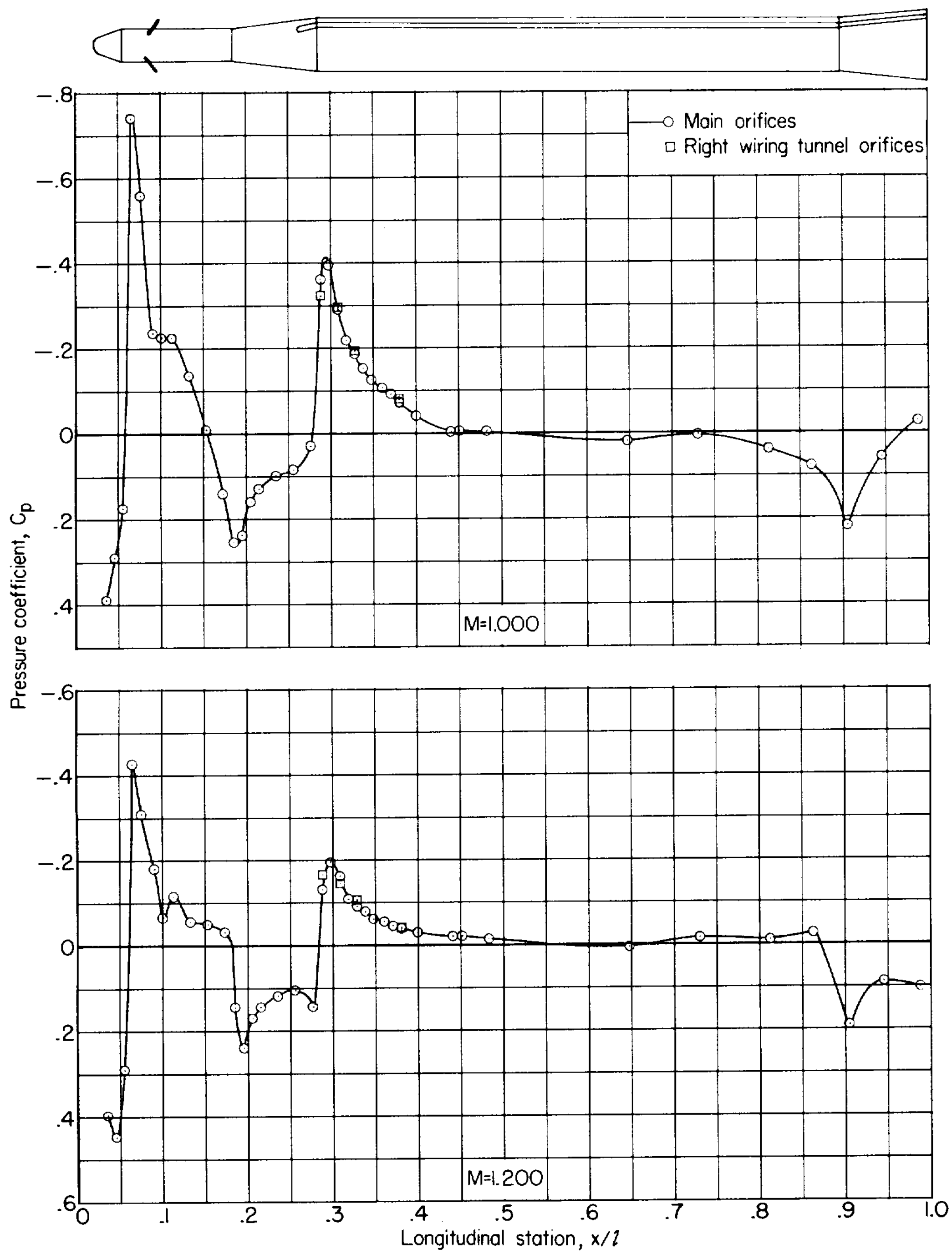
Figure 4.- Continued.



(b) $\phi = 90^{\circ}$.

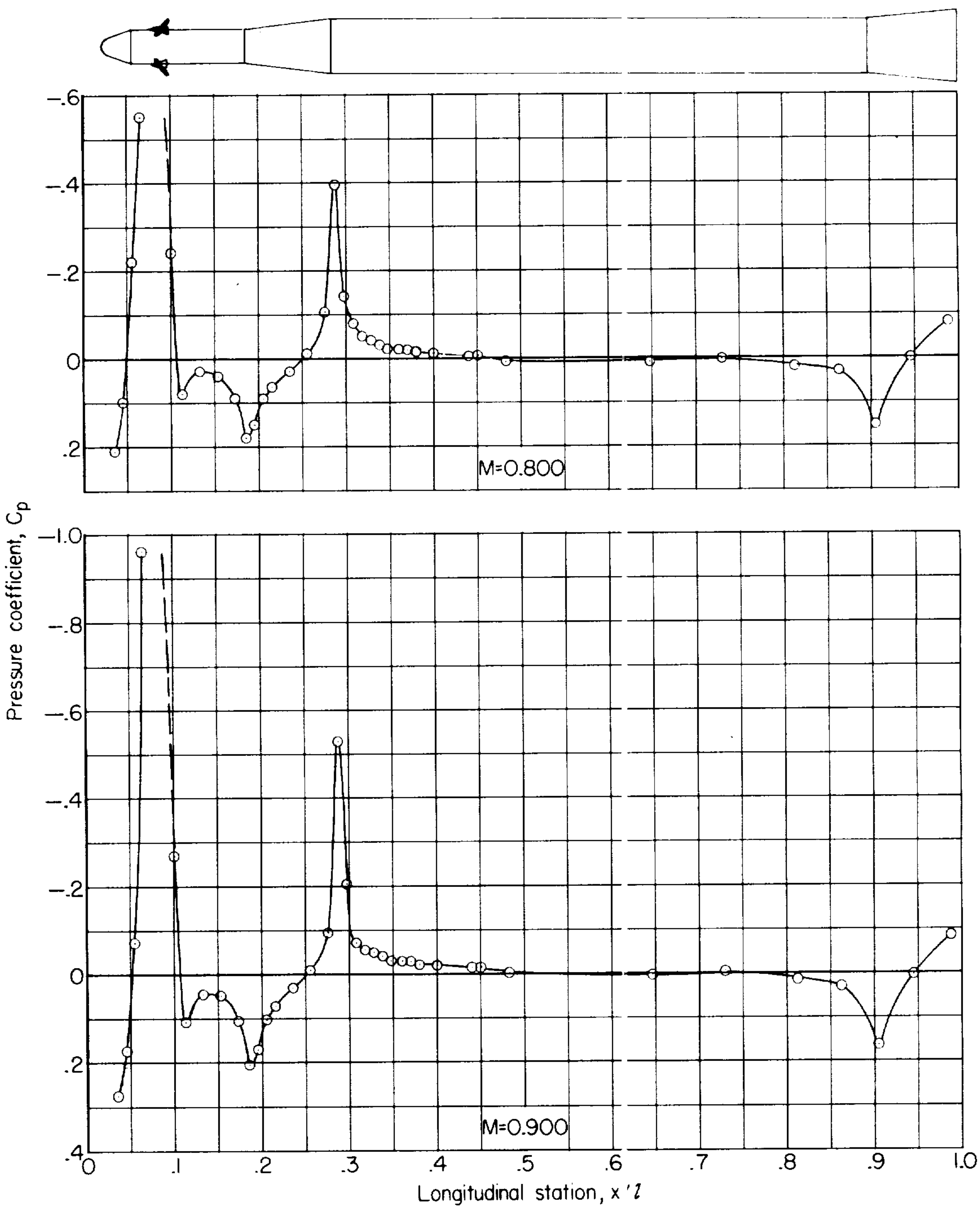
Figure 4.- Continued.

L-1607



(b) ϕ = 90°. Concluded.

Figure 4.- Continued.

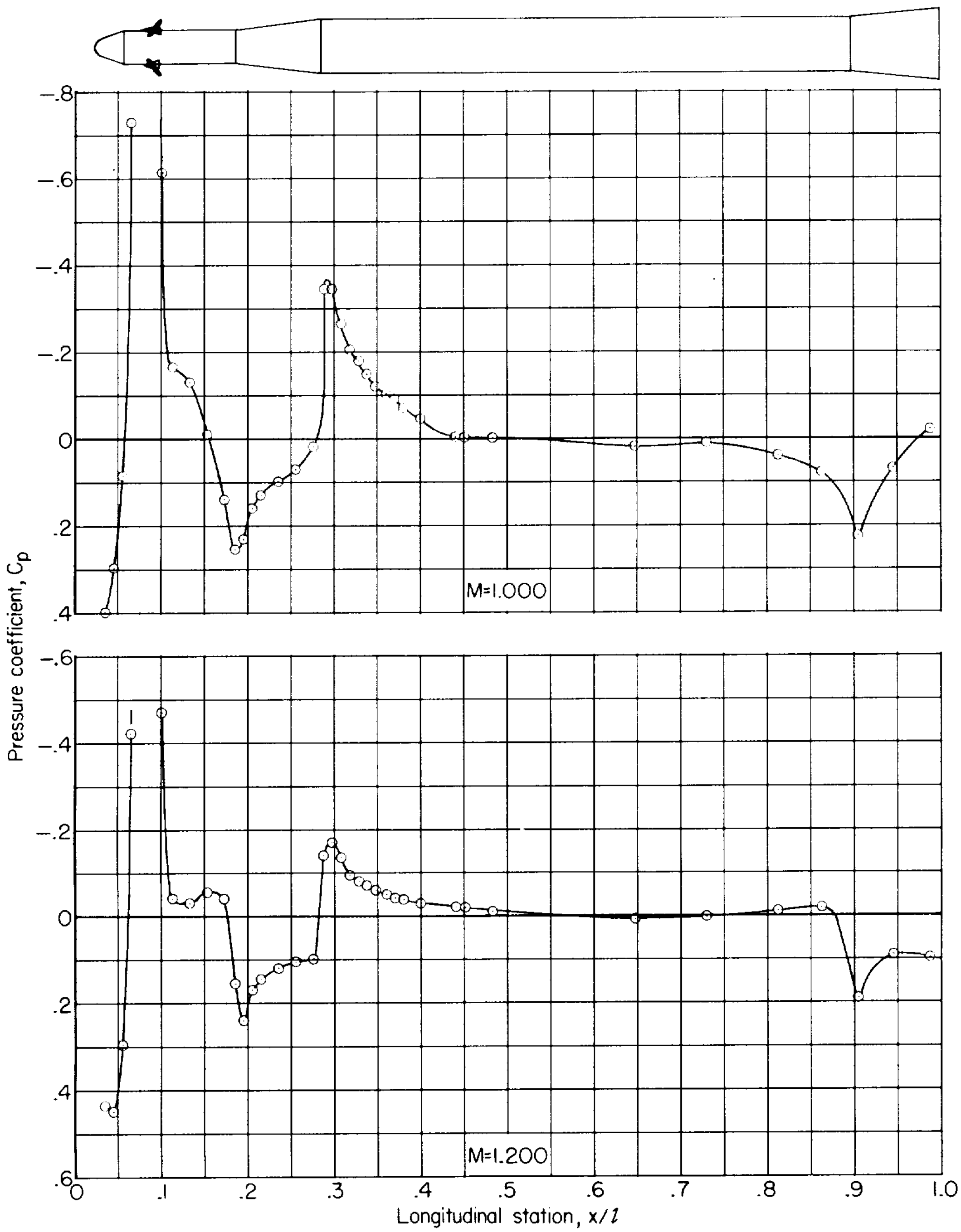


(c) $\phi = 180^{\circ}$.

Figure 4.- Continued.

L-1607

L-1607



(c) ϕ = 180°. Concluded.

Figure 4.- Concluded.

L-1607

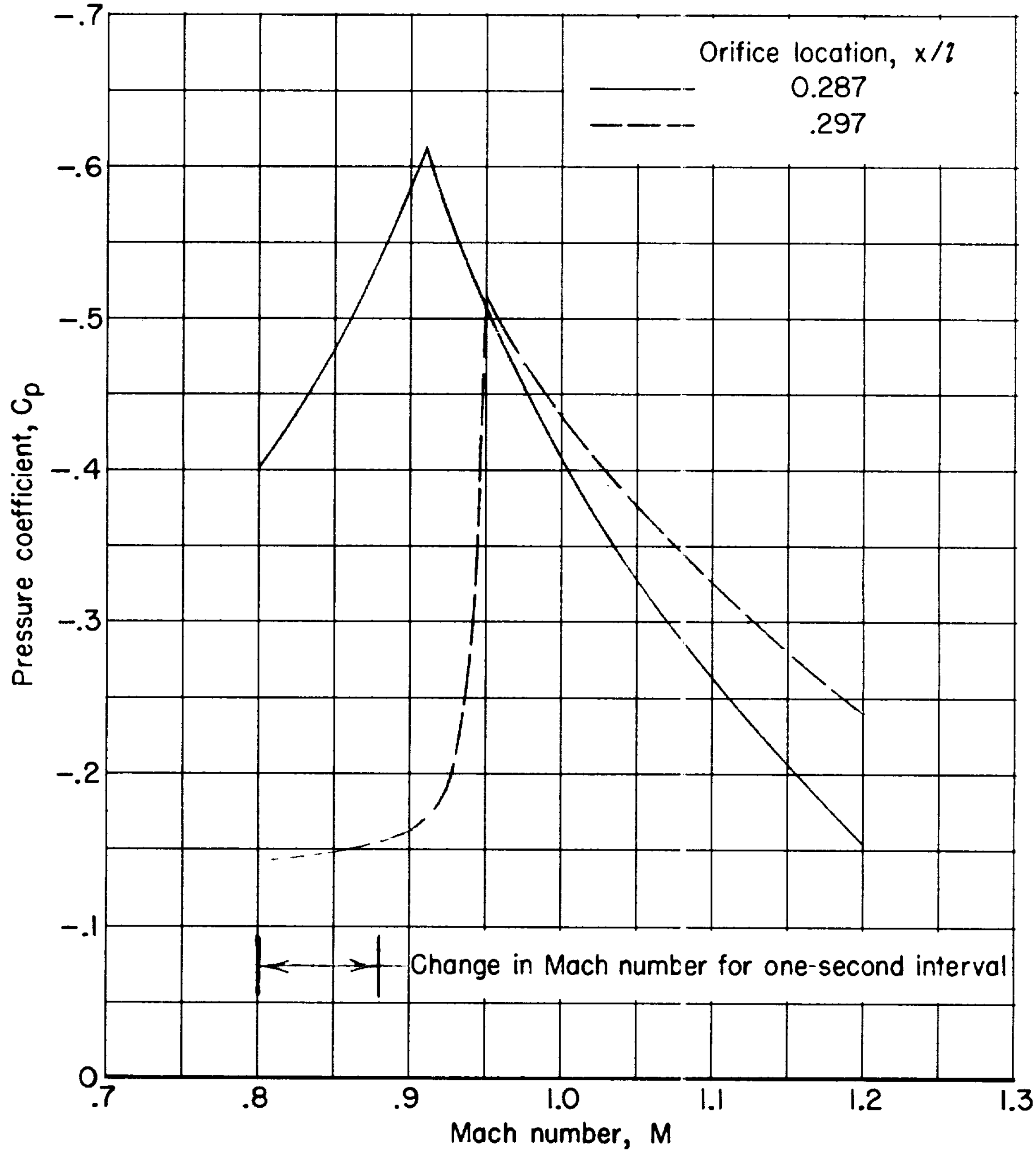


Figure 5.- Variation of local pressure coefficient with Mach number for two orifice locations. $\alpha = 0^{\circ}$; $\phi = 0^{\circ}$.

L-1607

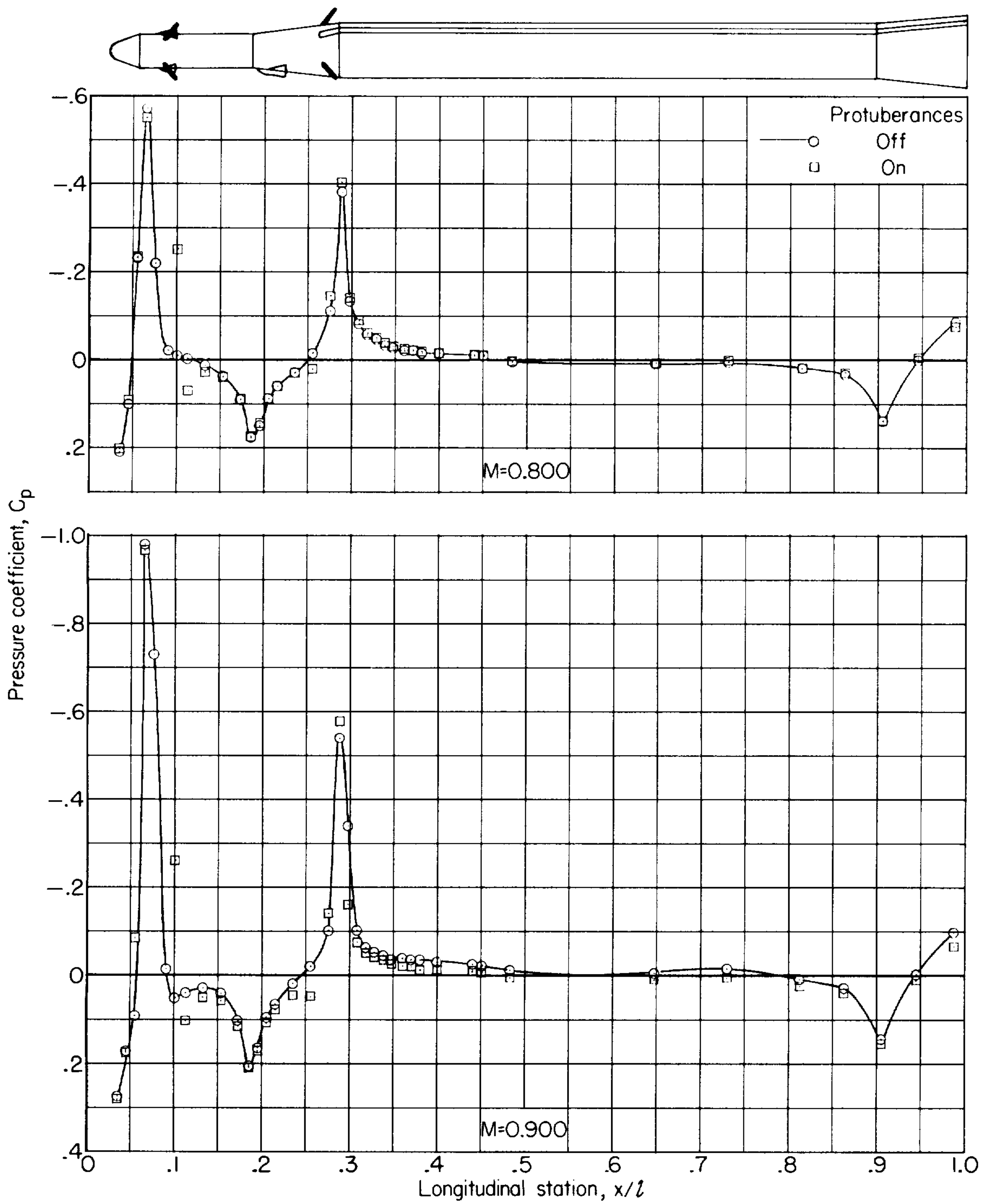


Figure 6.- Effect of protuberances on local pressure coefficients for the simulated Scout model. $\alpha = 0^{\circ}$; $\phi = 0^{\circ}$.

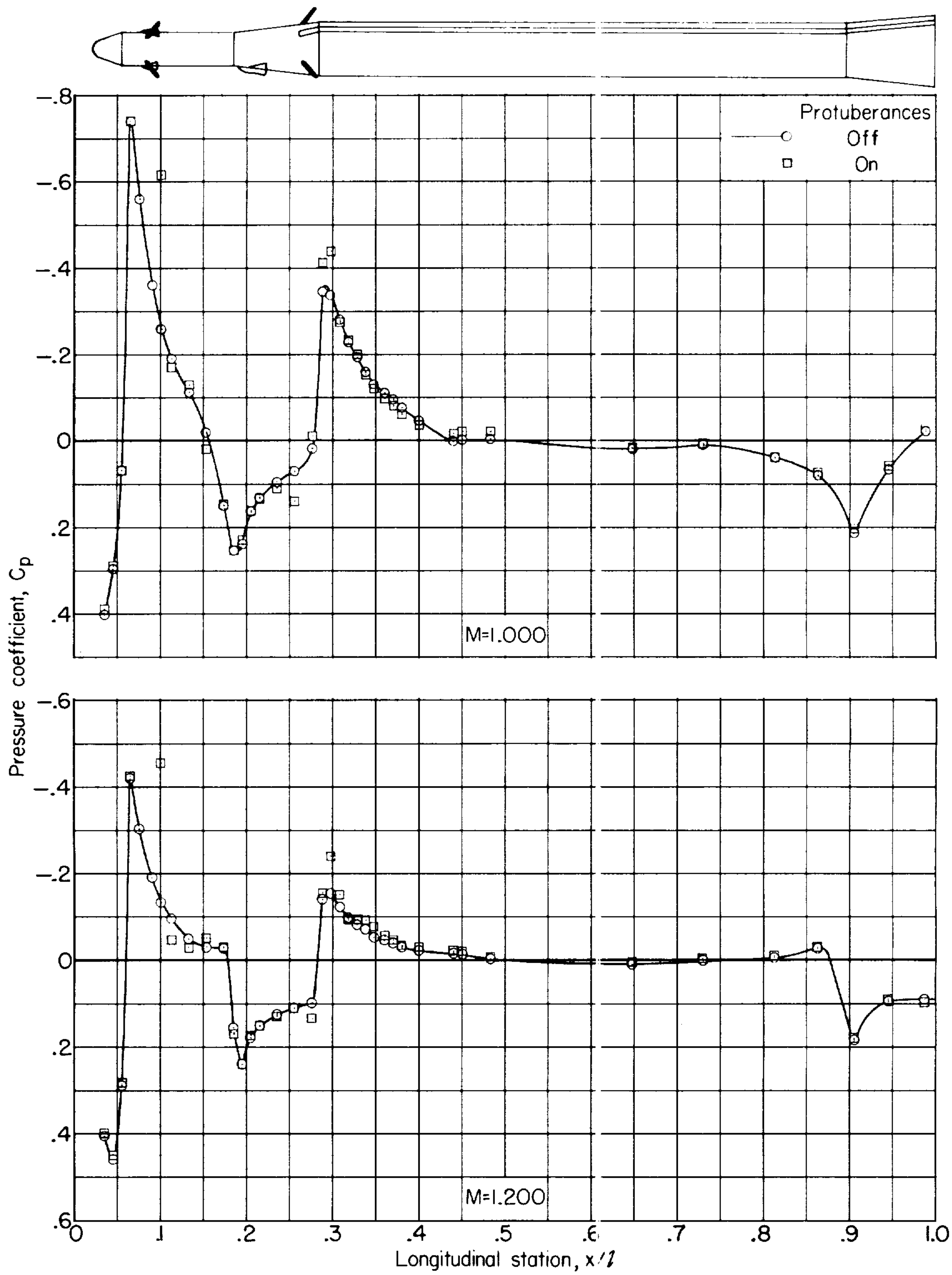


Figure 6.- Concluded.

L-1607

L-1607

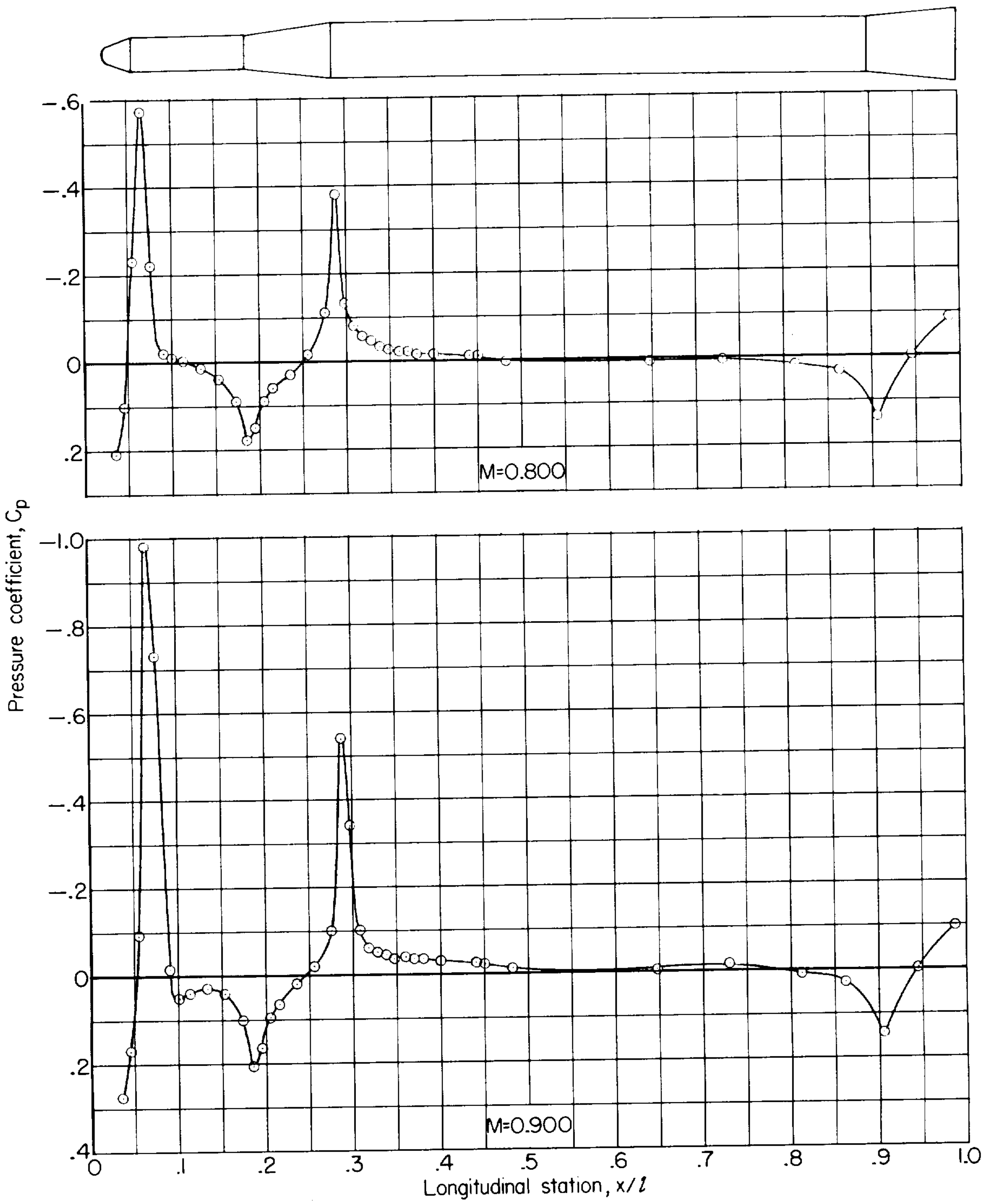


Figure 7.- Pressure coefficients for the body alone. $\alpha = 0^{\circ}$; $\phi = 0^{\circ}$.

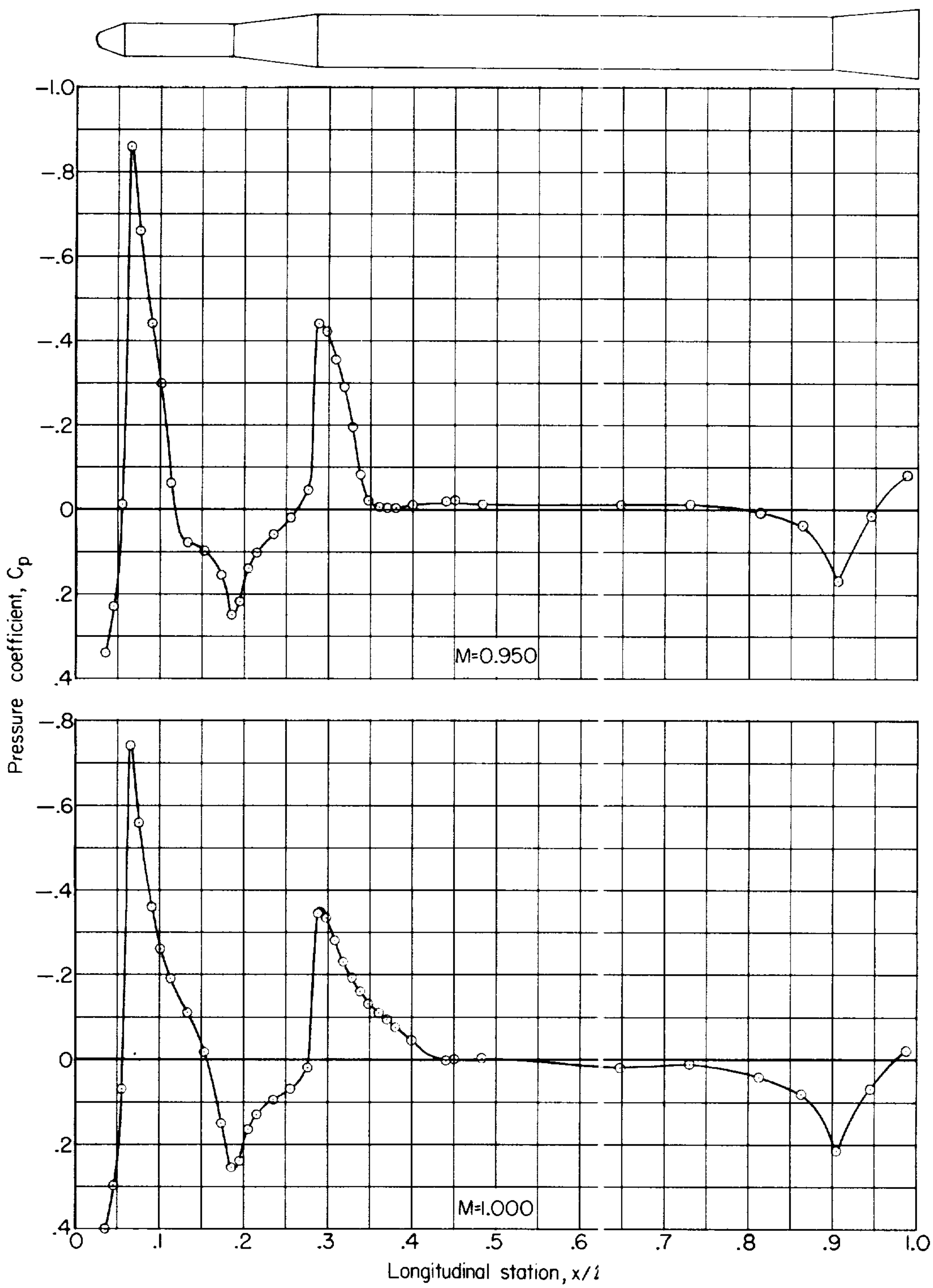


Figure 7.- Continued.

L-1607

L-1607

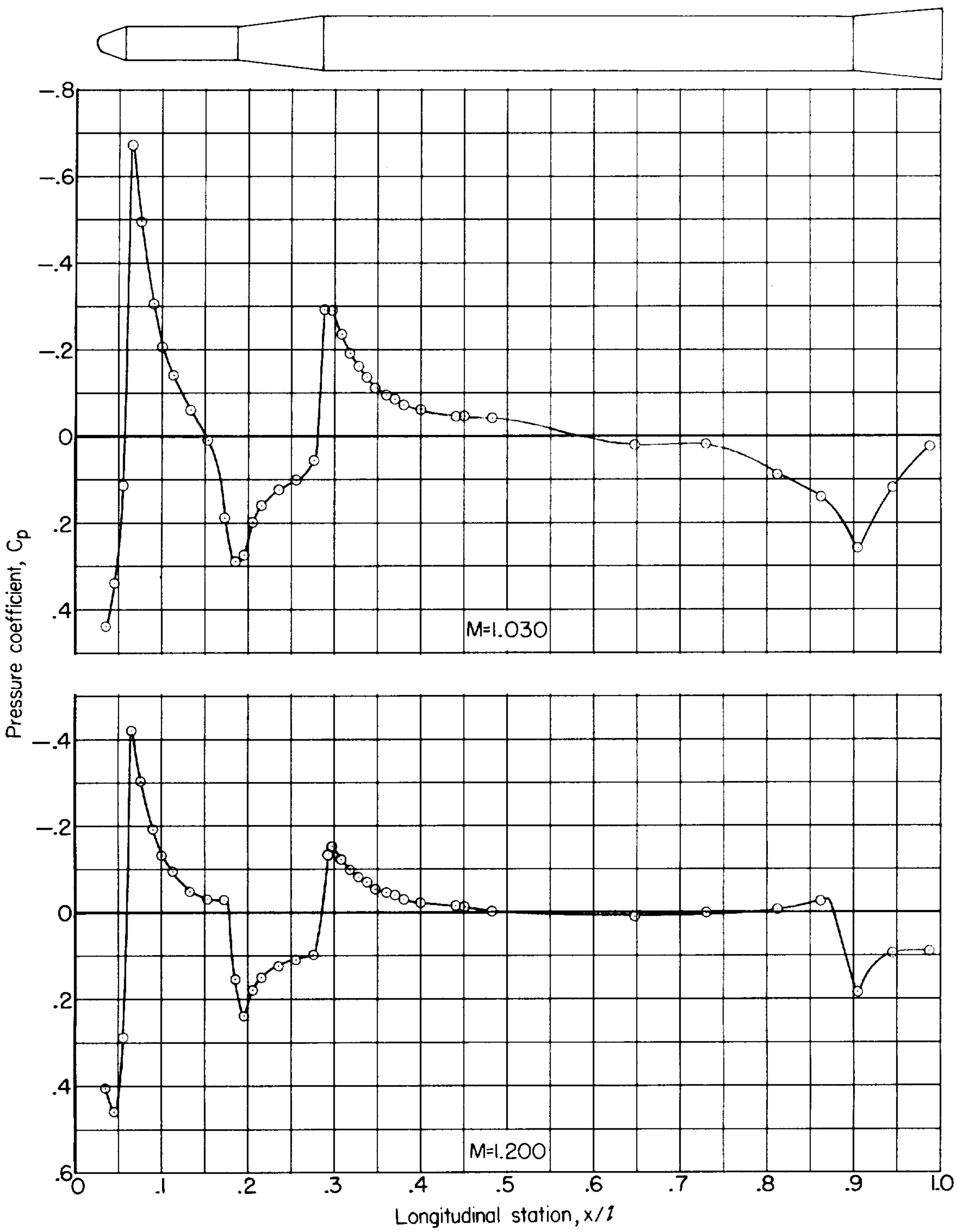


Figure 7.- Concluded.

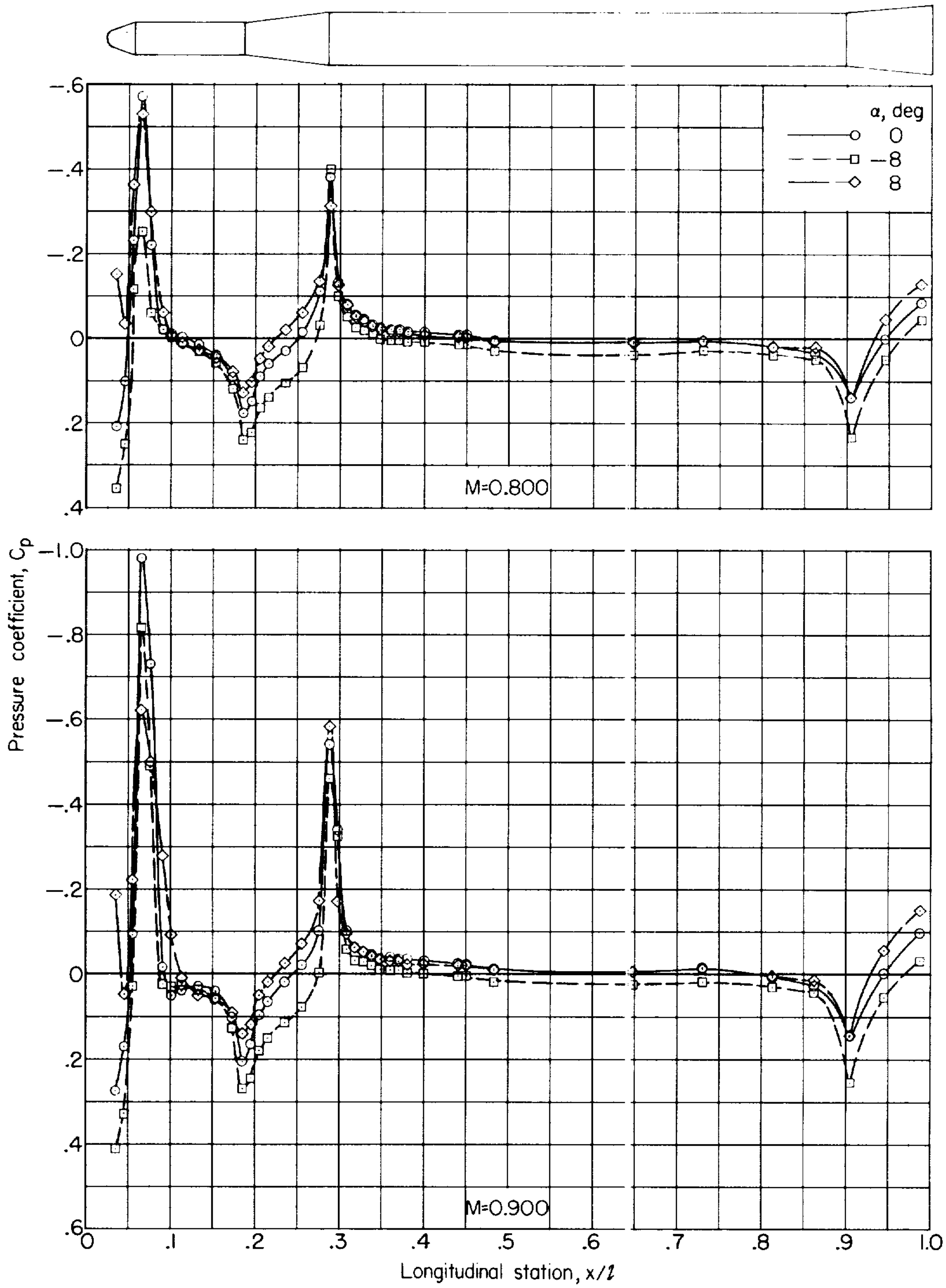


Figure 8.- Effect of angle of attack on local pressure coefficients for the body alone. $\phi = 0^{\circ}$.

L-1607

L-1607

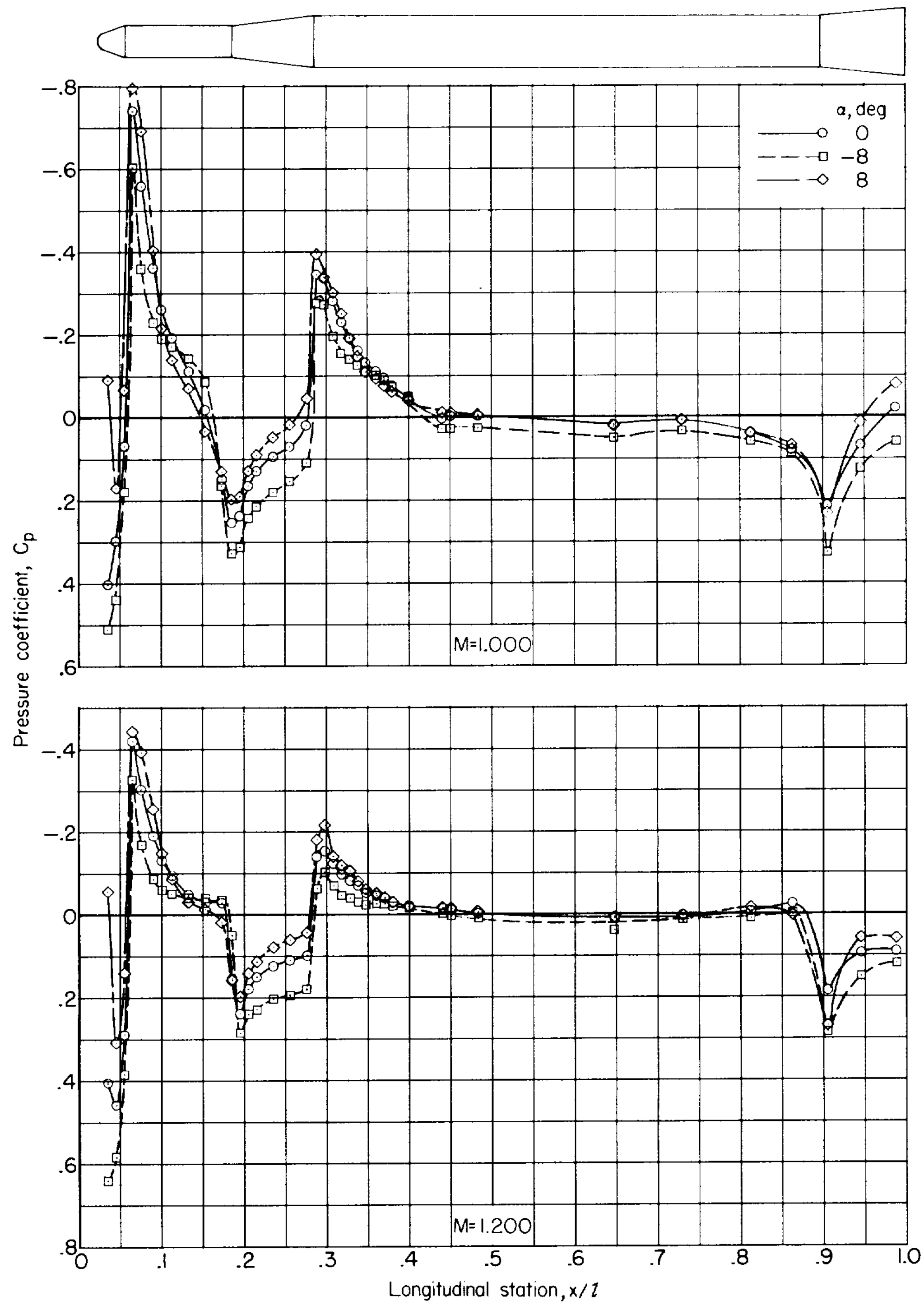


Figure 8.- Concluded.

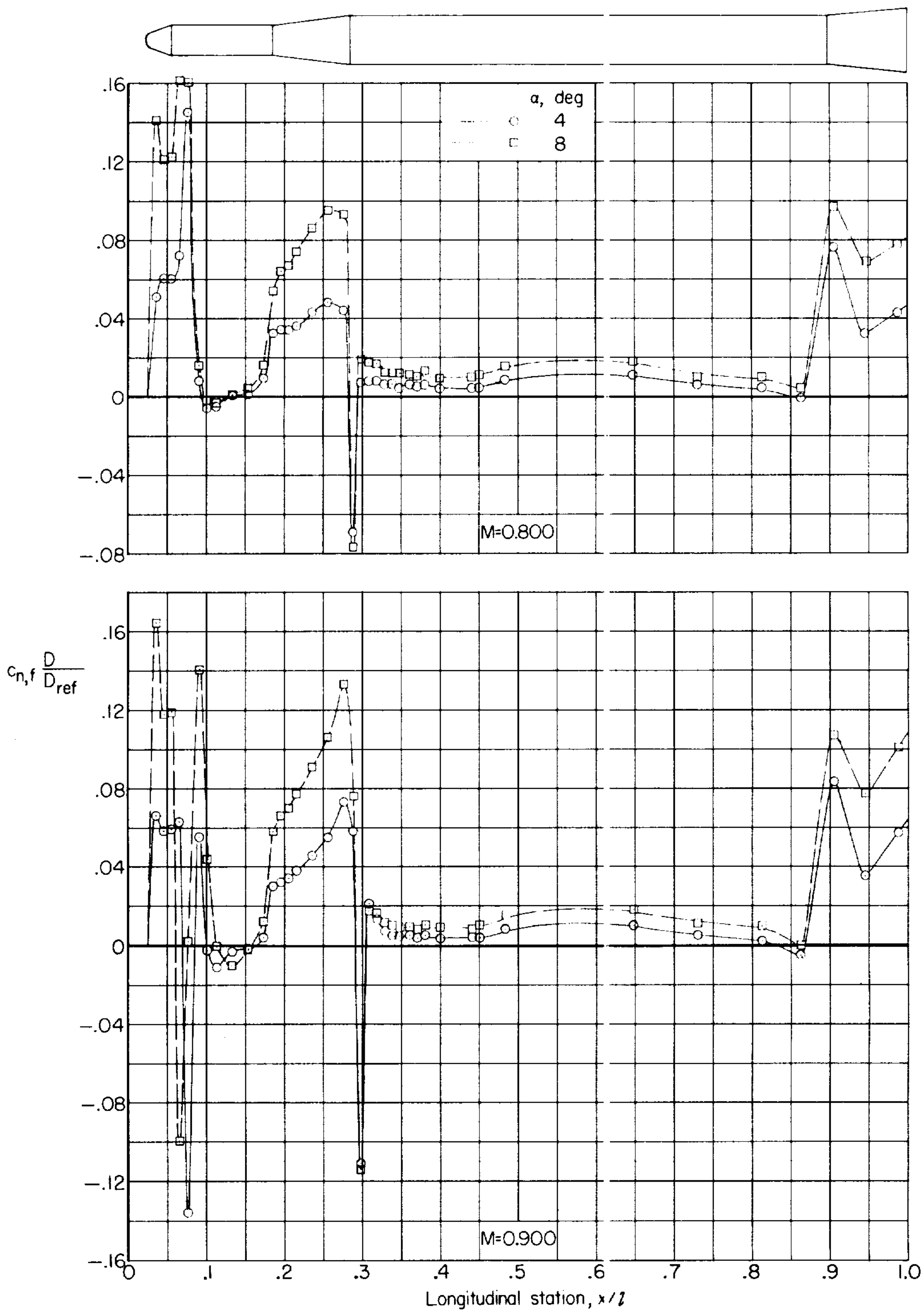


Figure 9.- Longitudinal load distribution for the body alone.

L-1607

L-1607

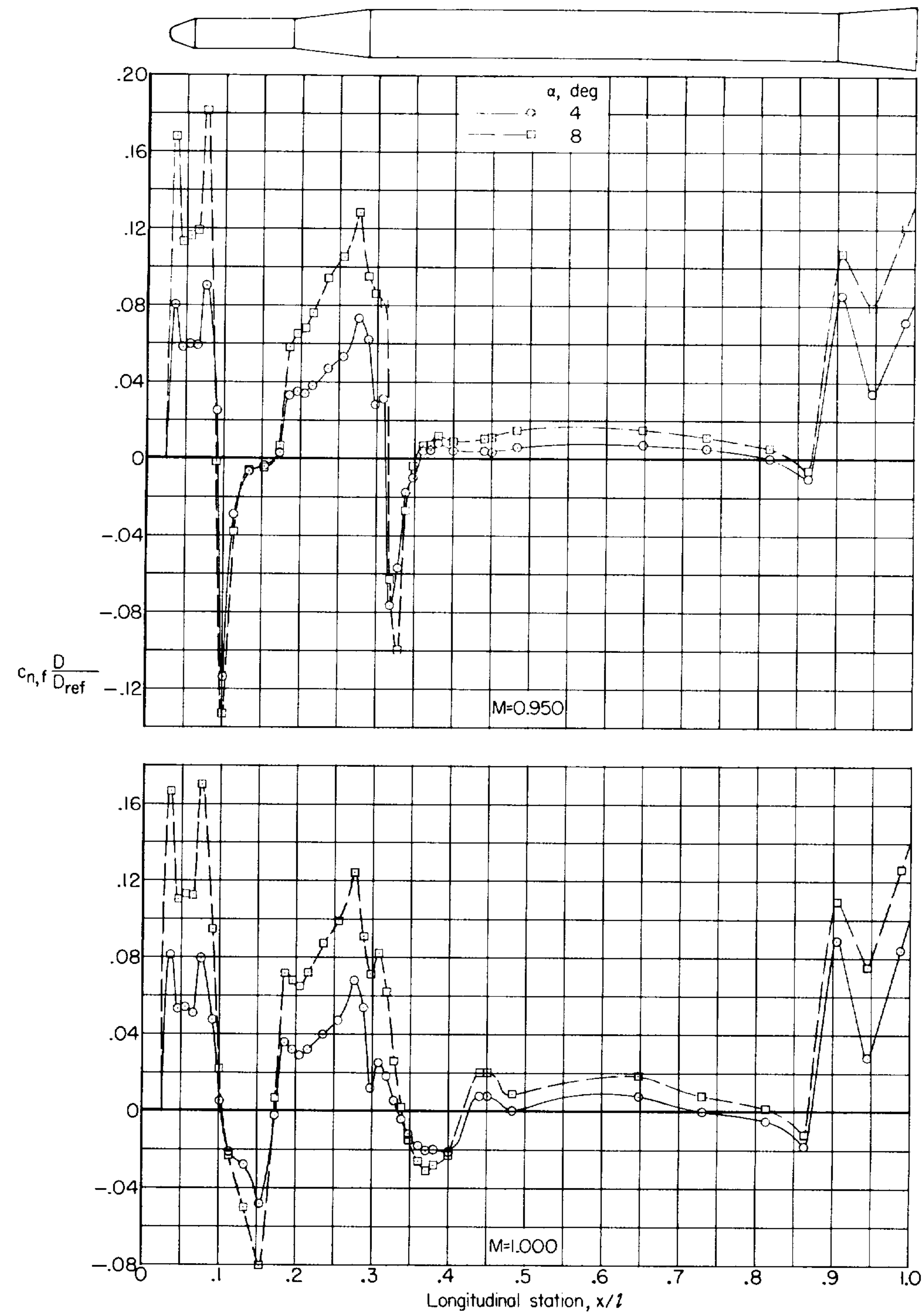


Figure 9.- Continued.

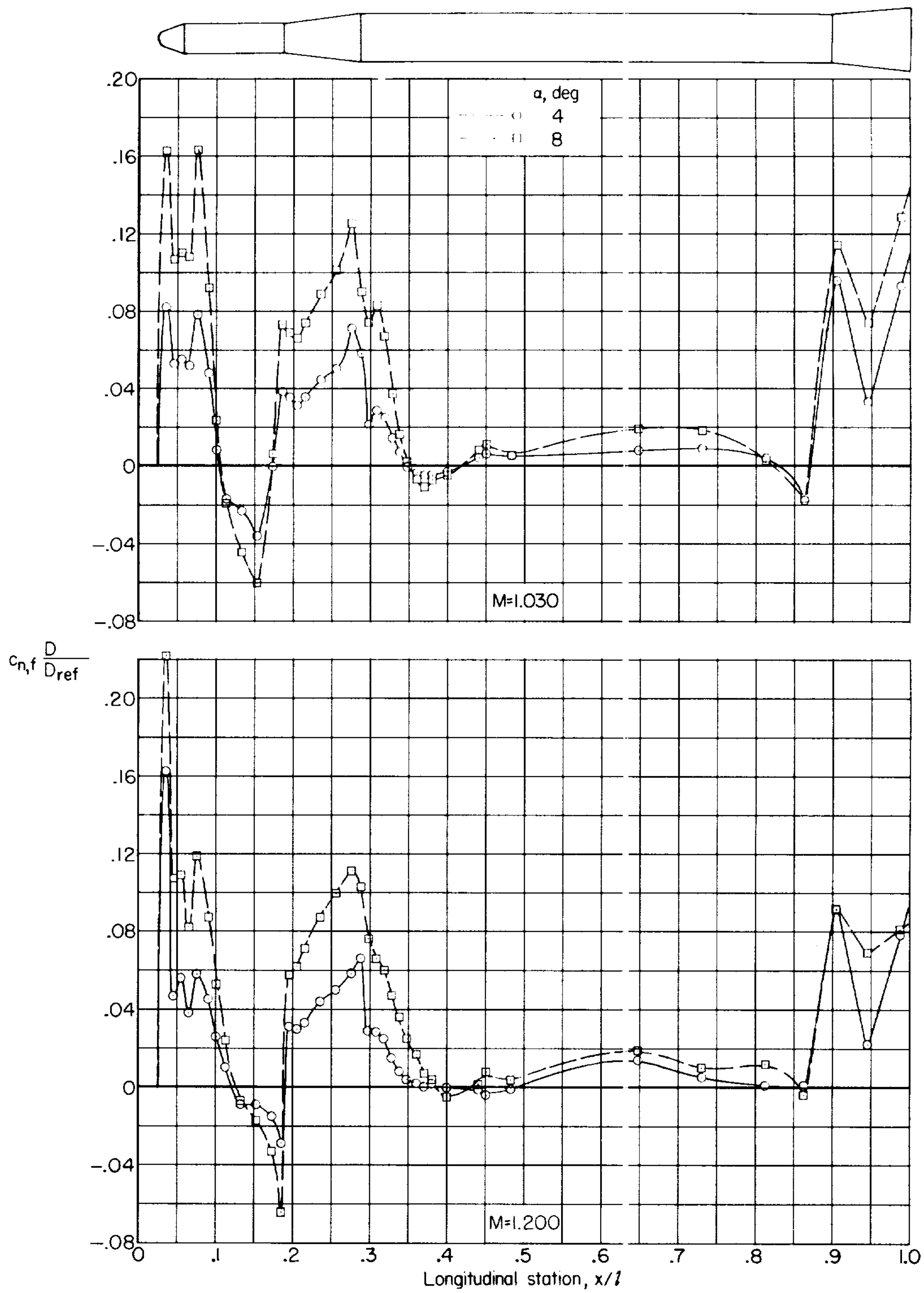


Figure 9.- Concluded.

L-1607

L-1607

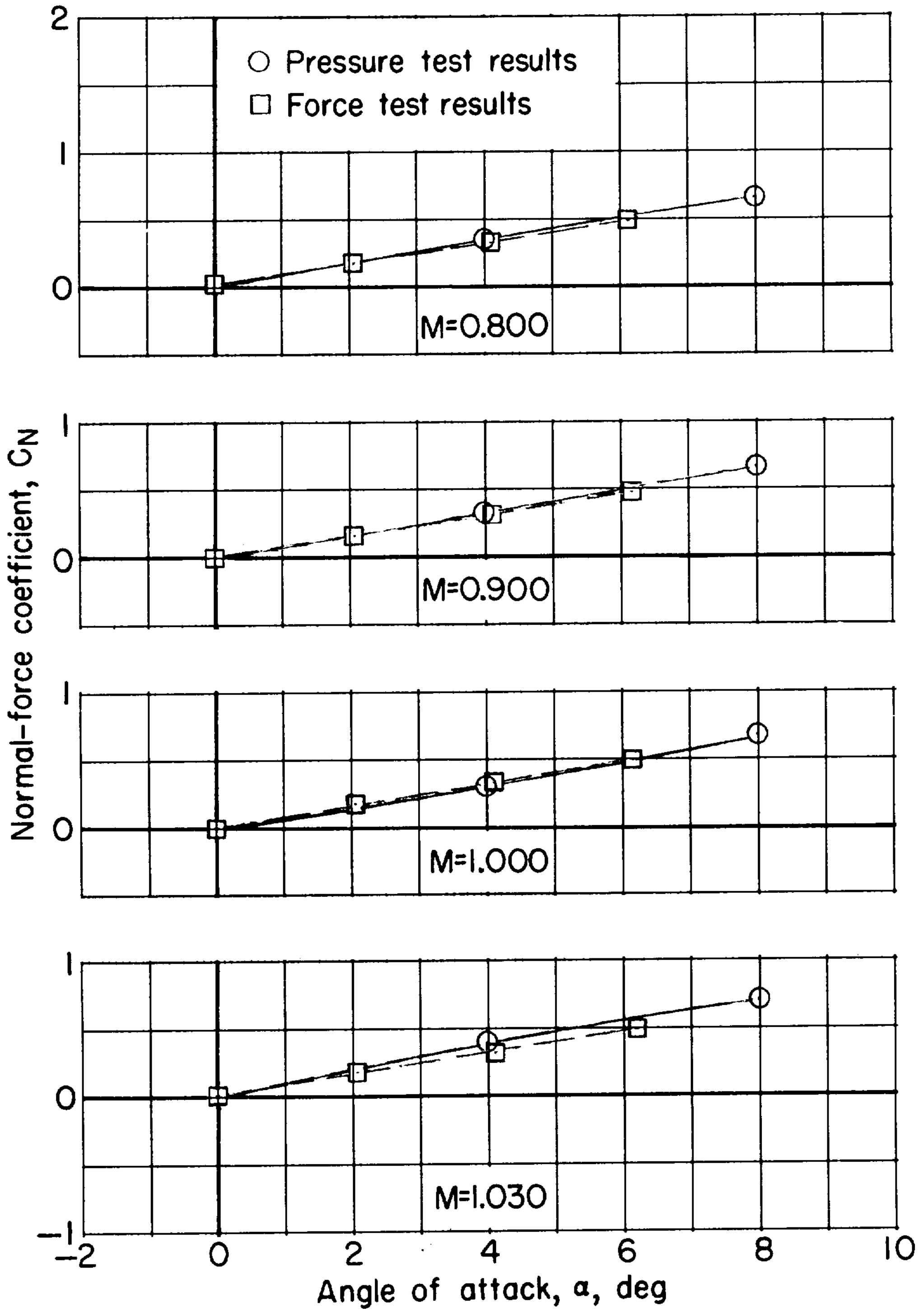


Figure 10.- Normal-force and pitching-moment coefficients for the body alone.

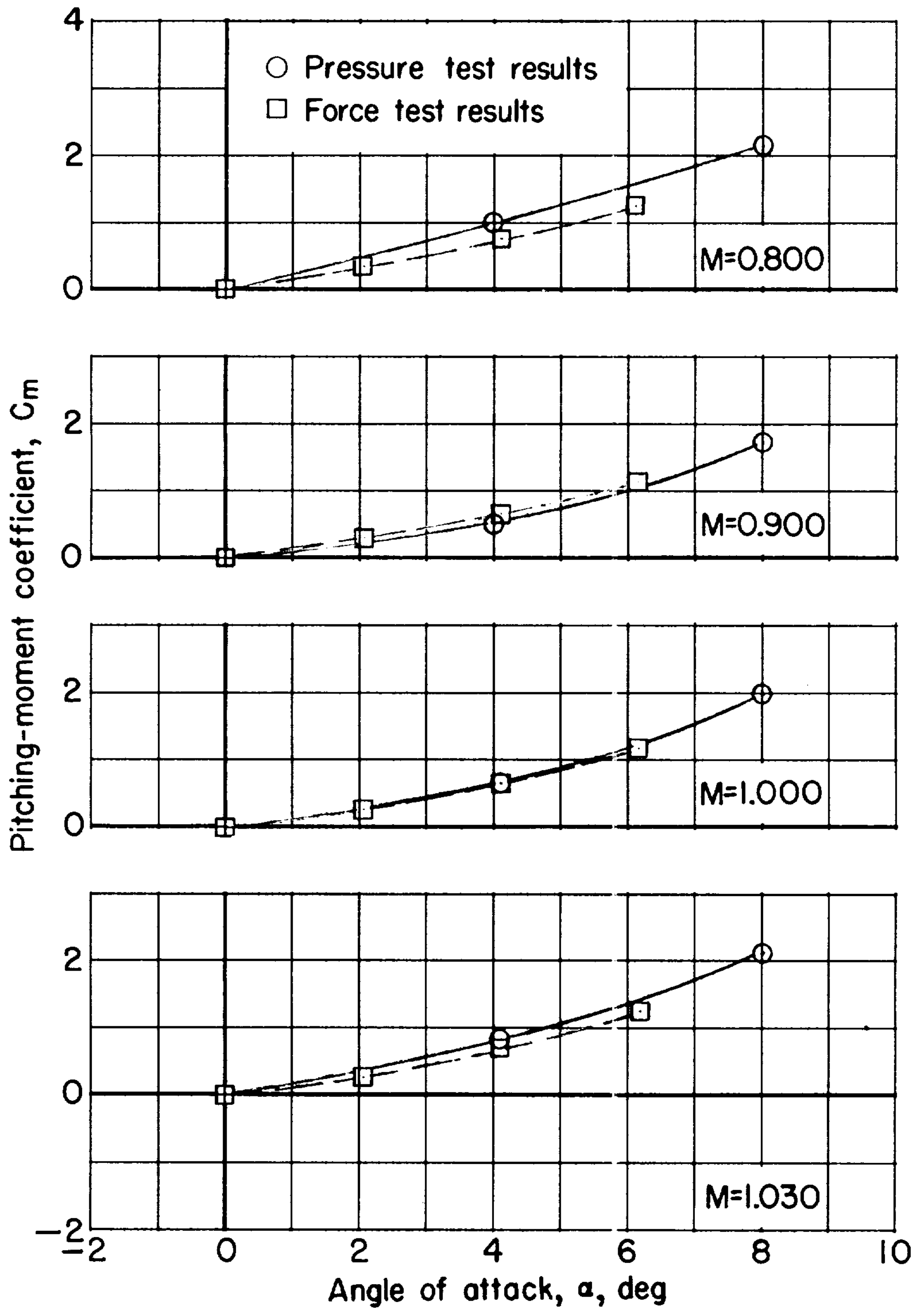


Figure 10.- Concluded.

L-1607